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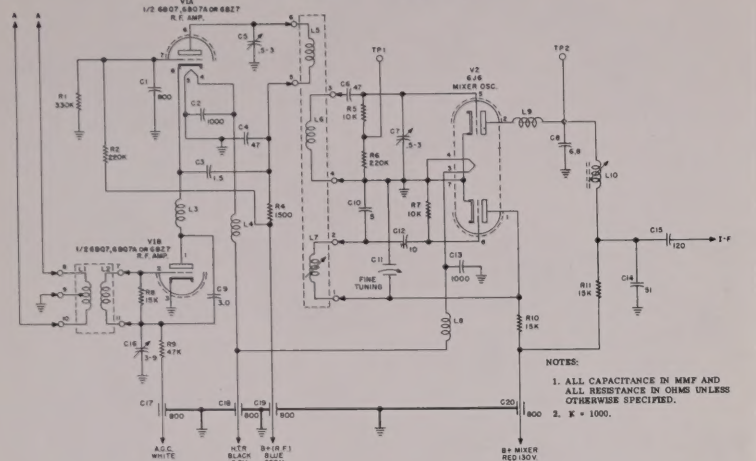
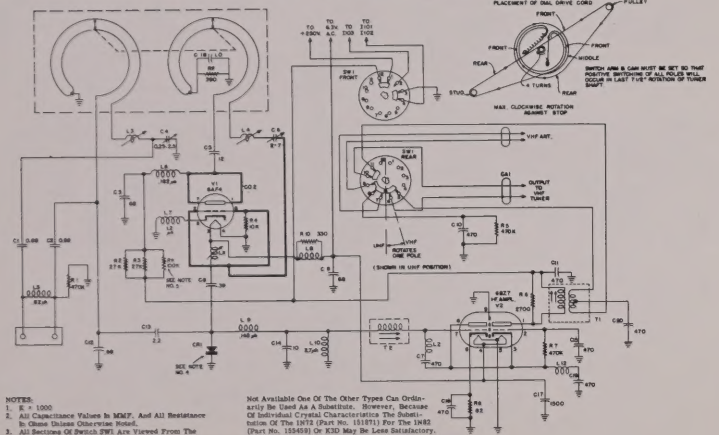
VHF TUNER SCHEMATIC



NOTES:

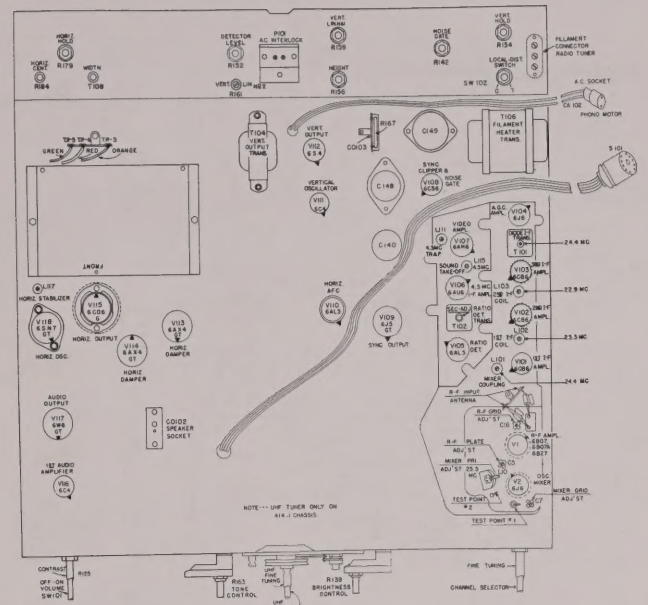
1. ALL CAPACITANCE IN MMF AND ALL RESISTANCE IN OHMS UNLESS OTHERWISE SPECIFIED.
2. K = 1000.

UHF CONVERTER SCHEMATIC



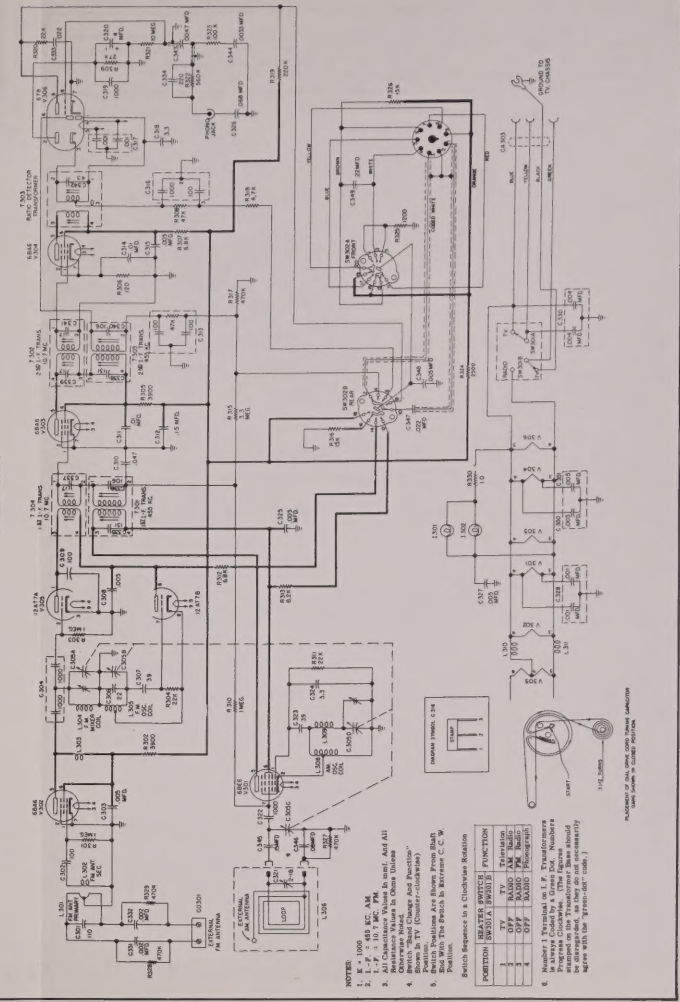
NOTES:

1. K = 1000
2. All Capacitance Values In MMF, And All Resistance In Ohms Unless Otherwise Noted.
3. All Sections Of Switch SW1 Are Viewed From The Shaft End.
4. When Possible, Replace The Crystal Mixer With One Of The Same Type. When The Same Type Is Not Available One Of The Other Types Can Ordinarily Be Used As A Substitute. However, Because Of Individual Crystal Characteristics The Substitution Of The 1N72 (Part No. 151871) For The 1N82 (Part No. 153459) Or X30 May Be Less Satisfactory.
5. In Some Early Production UHF Tuners, R11 Was Not Used. In Some Later UHF Tuners, R11 Is 47,000 Ohm, 10%, 1/2 Watt.



TOP VIEW, CHASSIS 414-1
(Tube and Alignment Location)

AM-FM TUNER SCHEMATIC
CHASSIS 362-3

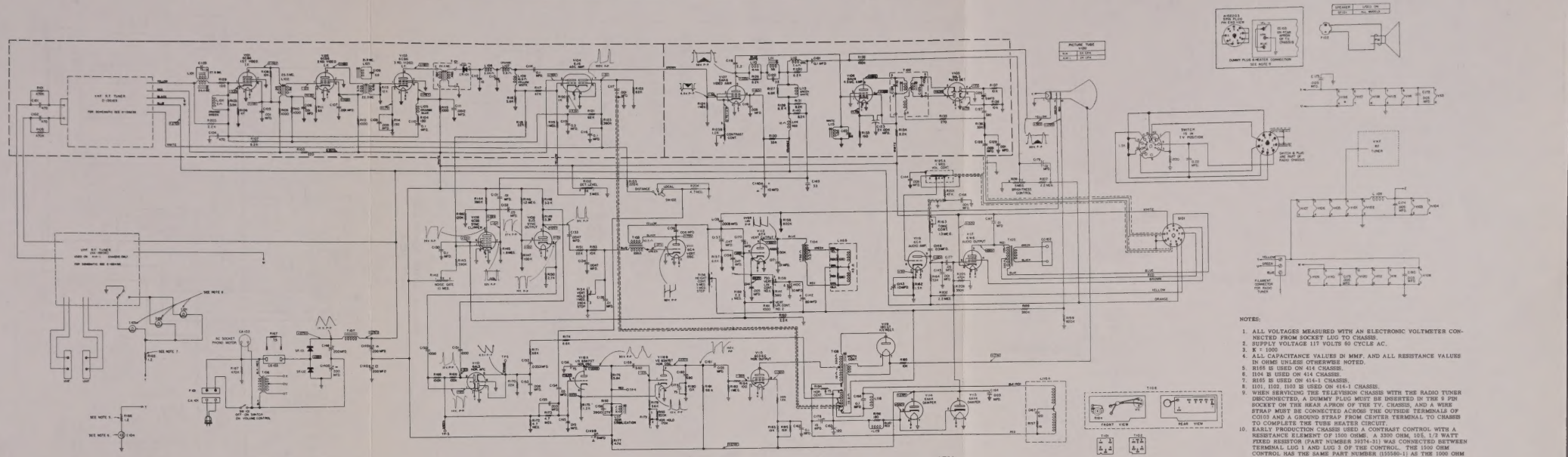


The service information in this Servicer provides data on models which we have been unable to present in PHOTOFACT Folders. The receivers are not in current production; a requirement for PHOTOFACT coverage, and we are therefore presenting schematics and supplementary data that will be of assistance when servicing these models.

The PHOTOFACT Servicer

SET 390 — Published for all users of Howard W. Sams' Photofact Folders — ★ MARCH 1, 1958

SCHEMATIC DIAGRAM COURTESY CROSLEY DIV. AVCO MFGR. CORP

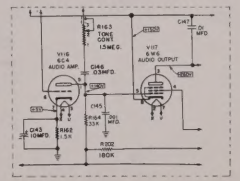


NOTES:

1. ALL VOLTAGES MEASURED WITH AN ELECTRONIC VOLTMETER CONNECTED FROM SOCKET LUG TO CHASSIS.
2. SUPPLY VOLTAGE 117 VOLTS 60 CYCLE AC.
3. K = 1000.
4. ALL CAPACITANCE VALUES IN MMF, AND ALL RESISTANCE VALUES IN OHMS UNLESS OTHERWISE NOTED.
5. R165 IS USED ON 414 CHASSIS.
6. I104 IS USED ON 414 CHASSIS.
7. R185 IS USED ON 414-1 CHASSIS.
8. I101, I102, I103 IS USED ON 414-1 CHASSIS.
9. WHEN SERVICING THE TELEVISION CHASSIS WITH THE RADIO TUNER DISCONNECTED, A DUMMY PLUG MUST BE INSERTED IN THE 9 PIN SOCKET ON THE REAR APRON OF THE TV. CHASSIS, AND A WIRE STRAP MUST BE CONNECTED ACROSS THE OUTSIDE TERMINALS OF C2103 AND A GROUND STRAP FROM CENTER TERMINAL TO CHASSIS TO COMPLETE THE TUBE HEATER CIRCUIT.
10. EARLY PRODUCTION CHASSIS USED A CONTRAST CONTROL WITH A RESISTANCE ELEMENT OF 1500 OHMS. A 3300 OHM, 10%, 1/2 WATT FIXED RESISTOR (PART NUMBER 30374-31) WAS CONNECTED BETWEEN TERMINAL LUG 1 AND LUG 3 OF THE CONTROL. THE 1500 OHM CONTROL HAS THE SAME PART NUMBER (135580-1) AS THE 1000 OHM CONTROL. THE SERVICE DEPT. WILL FURNISH ONLY THE 1000 OHM CONTROL. WHEN USING THIS CONTROL, DO NOT USE THE 3300 OHM RESISTOR SHUNT. (NO CODE LETTER IS USED TO DESIGNATE THIS CHANGE).

CHASSIS: 414 (Code A)
414-1 (Code A)

The figure at the right shows the coupling circuit between the audio amplifier and the audio output tubes as it is found in Chassis 414 (Code A) and 414-1 (Code A). Later production Chassis (Code B) have the circuit as shown in the full Chassis Schematic.



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SCHEMATIC WIRING DIAGRAM CHASSIS 414 & 414-1 (Code B)

PHOTOFACT* Folder

*TRADE MARK

HOTPOINT MODELS 17S305, 17S306, 21S400, 21S405, 21S505, 21S506 (M3 Line)

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HOTPOINT MODELS 17S305, 17S306, 21S400, 21S405, 21S505, 21S506 (M3 Line)

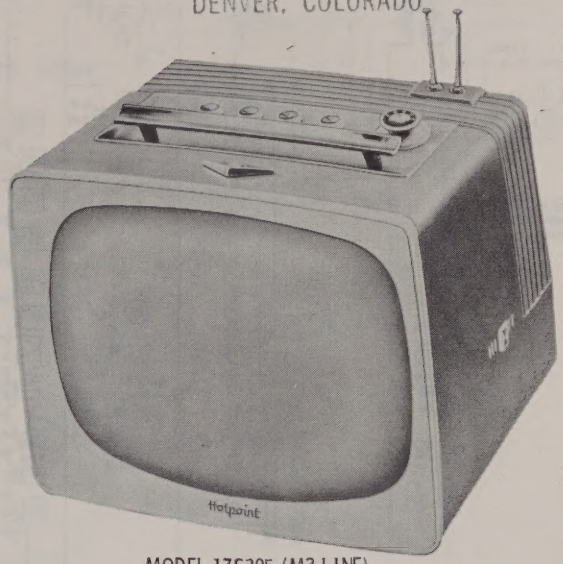
DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 6 push-on type knobs from the top.
2. Remove 3 metal screws holding the rear cover. Remove the rear cover.
3. Remove 1 phillips head screw holding the built-in antenna.
4. Remove 3 metal screws holding the top chassis brace.
5. Remove the picture tube socket and ion trap.
6. Remove 3 chassis bolts from the bottom.
7. Partially remove the chassis. Remove the speaker leads, HV lead and yoke. Remove the chassis.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.



MODEL 17S305 (M3 LINE)

TRADE NAME	Hotpoint Models 17S305, 17S306, 21S400, 21S405, 21S505, 21S506 (M3 Line)
MANUFACTURER	Hotpoint Co., 5600 W. Taylor St., Chicago 44, Illinois
TYPE SET	Television Receiver
TUBES	Fifteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 140 Watts, 1.2 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENT

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 2 metal screws from the bottom holding the front. Pull the bottom of the front out and swing up to remove. NOTE: Use only water and soft cloth for cleaning.

FOCUS

Adjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A10) located on top of chassis.

FUSES

One fuse is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

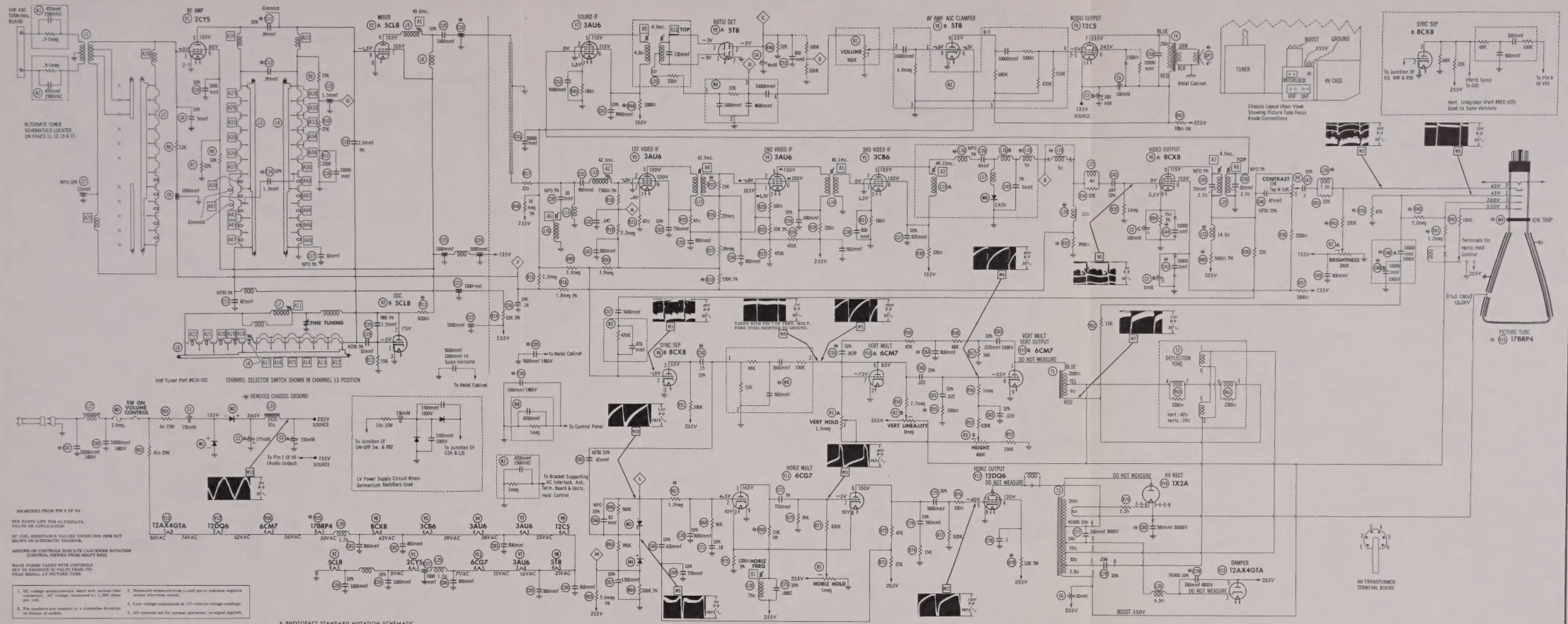
Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H207R

FOLDER 1



HOTPOINT MODELS 17S305, 17S306, 21S400, 21S405, 21S505, 21S506 (M3 Line)

TUBE PLACEMENT CHART

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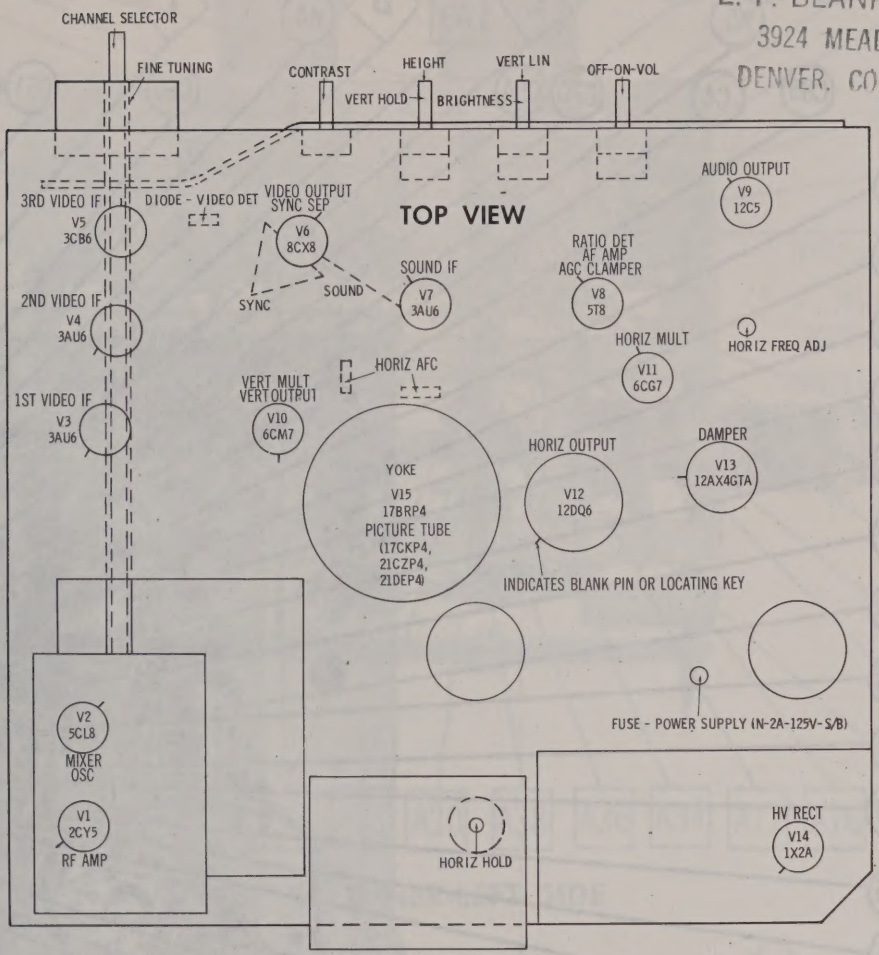


TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

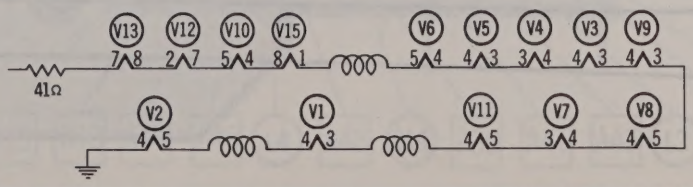
POWER SUPPLY FAILURE
No raster, no sound - **Fuse (M5), Rectifier (M1, M2)**

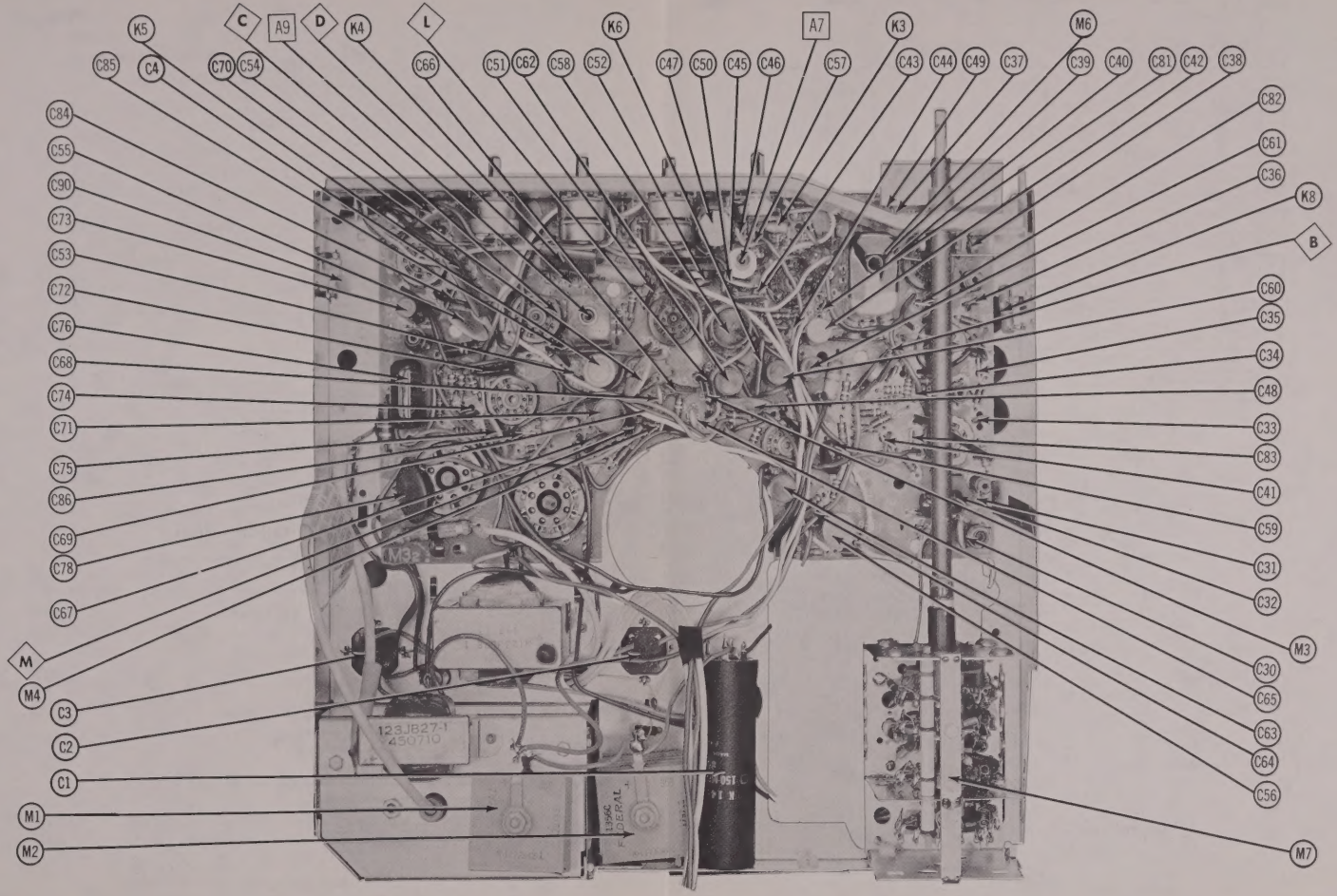
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, Diode (M6), V6**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V15**
Has pic, no sound - **V7, V8, V9**
Overloaded picture - **V8**

SYNC FAILURE
No vert. sync - **V6**
No horiz. sync - **V6, Diode (M4, M3)**
No vert. or horiz. sync - **V6**

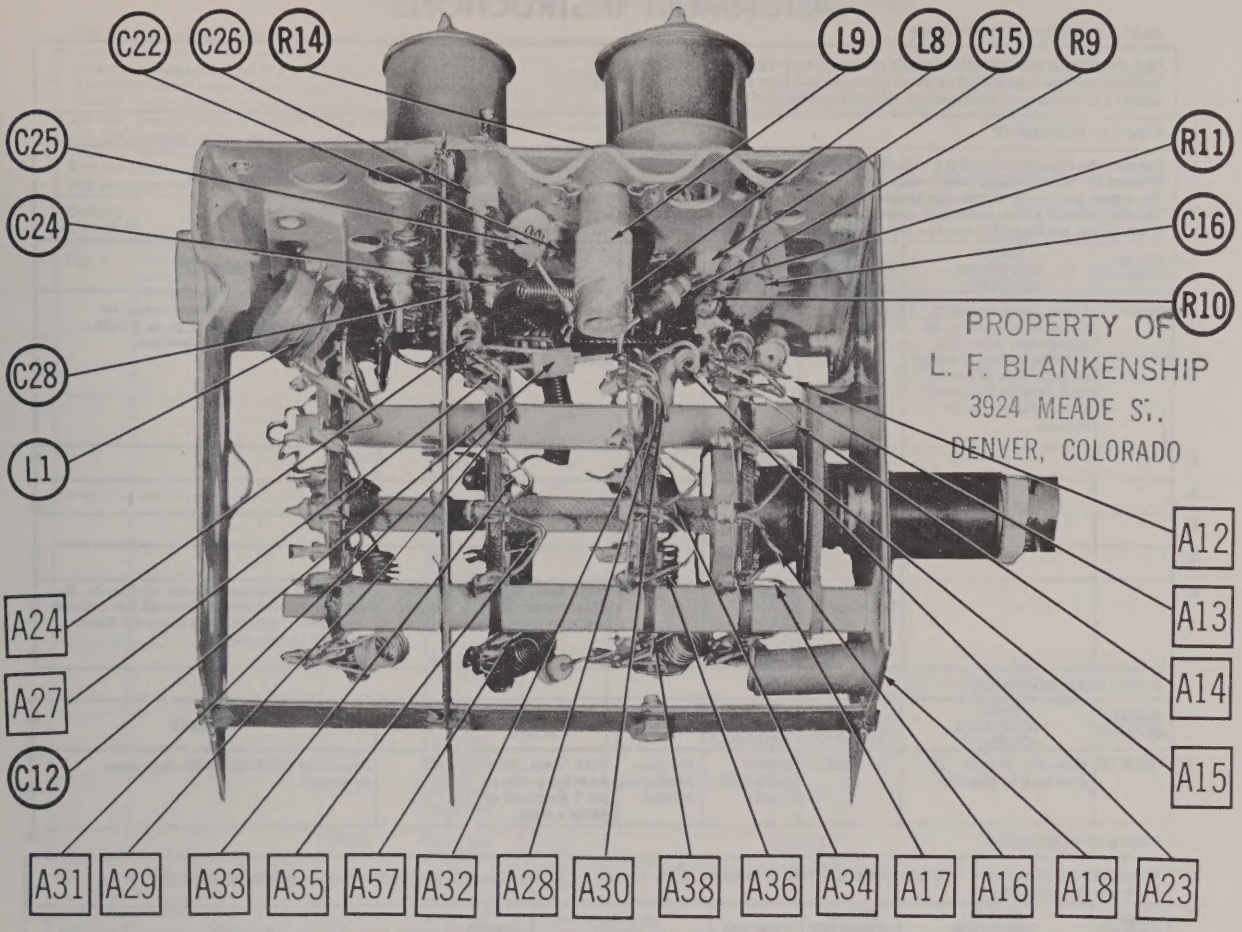
SWEEP FAILURE
No raster, has sound - **M3, M4, V11, V12, V13, V14, V15**
No vertical deflection - **V10**
Poor vert. linearity or foldover - **V10**
Poor horiz. linearity or foldover - **V11, V12, V13**
Narrow picture - **V11, V12, V13, M1, M2**
Vert. off freq. - **V10**
Horiz. off freq. - **V11**

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below).





CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



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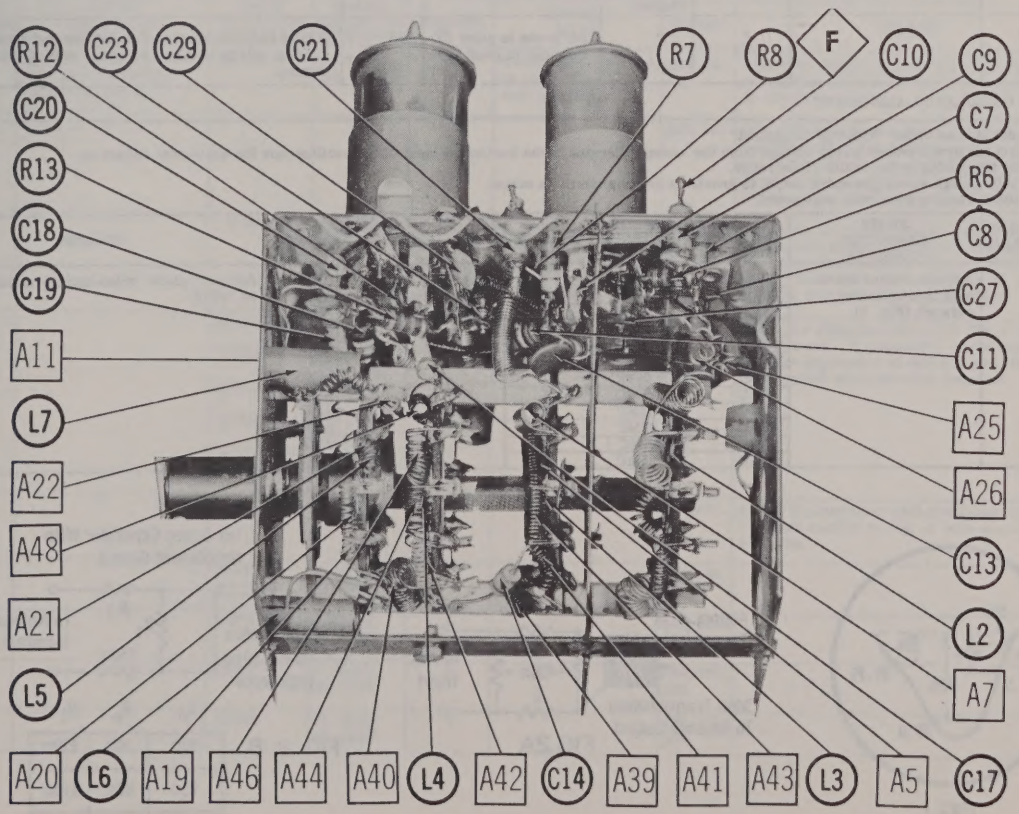
RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓐ . Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
If two peaks are found for any one adjustment, use peak nearest bottom of coil form.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	Place a thin insulated metal strip between the mixer-osc. tube (V2) and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	Not used	45.0MC (Unmod)	Any non-interfering channel	USE VTVM. DC probe thru 10K to point Ⓑ. Common to chassis.	A1	Use only enough generator output to provide a usable indication on VTVM. Adjust for maximum deflection.
2.	"	"	"	42.5MC	"	"	A2	"
3.	"	"	"	44.15MC	"	"	A3	"
4.	"	"	"	42.9MC	"	"	A4	"
5.	"	"	"	45.1MC	"	"	A5	"
6.	"	"	44MC (10MC Swp)	41.25MC 42.5MC 45.0MC 45.75MC 47.25MC	"	Vert. Amp. thru 10K to point Ⓑ . Low side to chassis.	A1, A2, A3, A4, A5, A6	Check for response similar to Fig. 1. If necessary, retouch A1 thru A5 for desired response. Adjust A6 to place 47.25MC marker in trap notch.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.001MFD	High side to point Ⓑ . Low side to chassis.	Not used	4.5MC (400∿ 30% AM)	Any non-interfering channel	Vert. Amp. thru detector probe to pin 7 (cathode) of picture tube.	A7	Adjust for MINIMUM 400∿ indication on scope.

SOUND IF ALIGNMENT

Connect two matched 100K (±1%) resistors in series from point Ⓒ to chassis. The junction of these two resistors is alignment point Ⓔ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.001MFD	High iside to point Ⓑ . Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point Ⓒ. Common to chassis.	A8, A9	Adjust for maximum deflection.
9.	"	"	"	"	DC probe to point Ⓓ . Common to point Ⓔ .	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

VHF OSCILLATOR ALIGNMENT

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Fig. 2	Across antenna terminals thru matching network (Fig. 2).	213MC	211.25MC	13	Vert. Amp. thru 47K to point Ⓑ . Low side to chassis.	A11	Adjust to place video marker at 50% on curve.
			207MC	205.25MC	12		A12	
			201MC	199.25MC	11		A13	
			195MC	193.25MC	10		A14	
			189MC	187.25MC	9		A15	
			183MC	181.25MC	8		A16	
			177MC	175.25MC	7		A17	
			85MC	83.25MC	6		A18	
			79MC	77.25MC	5		A19	
			69MC	67.25MC	4		A20	
			63MC	61.25MC	3		A21	
			57MC	55.25MC	2		A22	

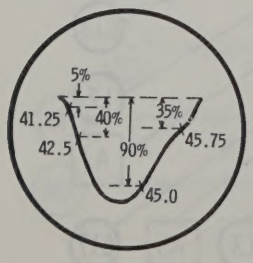


FIG. 1

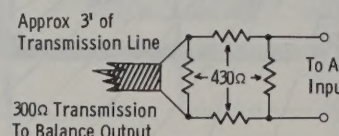


FIG. 2A

For Sweep Generator With Unbalanced Output

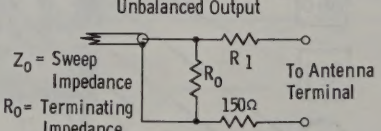


FIG. 2 B

Z_0	R_0	R_1
50Ω	50Ω	120Ω
72Ω	82Ω	110Ω
92Ω	110Ω	100Ω

ALIGNMENT INSTRUCTIONS (cont)

VHF RF AND MIXER ALIGNMENT FOR TUNERS #RJX-101 AND RJX-106

Connect the negative lead of a 3 volt bias supply to point (F). Positive to chassis.
Disconnect tuner output leaving ground wire connected. Connect a 68Ω resistor from the tuner output to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
If in the following steps, it is found that the bandwidth is incorrect, adjust the gimmick of C11. Moving the gimmick nearer the capacitor will increase the bandpass and vice-versa.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Fig. 2	Across antenna terminals thru matching network (Fig. 2.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point (G). Low side to chassis.	A23, A24, A25, A26	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. A23 affects picture side of curve and A24 affects sound side.
12.	"	"	207MC	205.25MC 209.75MC	12	"	A27, A28	Adjust in numberical order, the sound side is first affected and then the video side. Adjust for curve similar to Fig. 3.
13.	"	"	201MC	199.25MC 203.75MC	11	"	A29, A30	"
14.	"	"	195MC	193.25MC 197.75MC	10	"	A31, A32	"
15.	"	"	189MC	187.25MC 191.75MC	9	"	A33, A34	"
16.	"	"	183MC	181.25MC 185.75MC	8	"	A35, A36	"
17.	"	"	177MC	175.25MC 179.75MC	7	"	A37, A38	"
18.	"	"	85MC	83.25MC 87.75MC	6	"	A39, A40	Adjust in numerical order, the sound side is first affected and then the video side. Adjust for curve similar to Fig. 4.
19.	"	"	79MC	77.25MC 81.75MC	5	"	A41, A42	"
20.	"	"	69MC	67.25MC 71.75MC	4	"	A43, A44	"
21.	"	"	63MC	61.25MC 65.75MC	3	"	A45, A46	"
22.	"	"	57MC	55.25MC 59.75MC	2	"	A47, A48	"

VHF RF AND MIXER ALIGNMENT FOR TUNERS #RJX-107 AND RJX-108

Connect the negative lead of 3 volt bias supply to point (F). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
23.	Fig. 2	Across antenna terminals thru matching network (Fig. 2).	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point (G). Low side to chassis.	A49, A50, A51	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown.
24.	"	"	"	"	"	"	A52, A53	Check for response similar to Fig. 3. Adjust A52 for proper bandwidth by moving capacitor lead (A52) with respect to high band coupling strap. Adjust A53 SLIGHTLY if necessary to correct for excessive dip.
25.	"	"	177MC	175.25MC 179.75MC	7	"	A54, A55	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. Bandwidth is adjusted by varying the gimmick wire with relation to its distance from the adjacent capacitor.
26.	"	"	207MC	205.25MC 209.75MC	12	"		Check for response similar to Fig. 3 on each channel. If necessary, make compromise adjustment of A54 and A55. Replace tuner shield when checking response.
			201MC	199.25MC 203.75MC	11			
			195MC	193.25MC 197.75MC	10			
			189MC	187.25MC 191.75MC	9			
			183MC	181.25MC 185.75MC	8			
27.	"	"	85MC	83.25MC 87.75MC	6	"	A56, A57, A58	Adjust for maximum gain and symmetry of response similar to Fig. 4 with markers as shown.
28.	"	"	79MC	77.25MC 81.75MC	5	"	A59, A60, A61	"
29.	"	"	69MC	67.25MC 71.75MC	4	"	A62, A63, A64	"
30.	"	"	63MC	61.25MC 65.75MC	3	"	A65, A66, A67	"
31.	"	"	57MC	55.25MC 59.75MC	2	"	A68, A69, A70	"

ALIGNMENT INSTRUCTIONS (cont)

UHF IF ALIGNMENT

Disconnect tuner output leaving ground wire connected and terminate with 68Ω resistor.
Connect the negative lead of a 3 volt bias supply to point Ⓕ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
32.	Fig. 5	High side thru network (Fig. 5) to point H Low side to chassis.	43MC (10MC Swp)	40.5MC 45.75MC	UHF Tune for MINIMUM tilt over center tuning area	Vert. Amp. thru 10K to point Ⓖ. Low side to chassis.	A71, A72, A73	Adjust for maximum gain and symmetry of response similar to Fig. 6 with markers as shown. Adjust A73 for MINIMUM tilt.

UHF TUNER ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓕ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
33.	Fig. 2	Across UHF antenna terminals thru matching network (Fig. 2).	460MC	460MC	UHF Rotate UHF tuner shaft fully counter clockwise.	Vert. Amp. thru 10K to point Ⓖ. Low side to chassis.	A74	Adjust to place marker in trap notch.
34.	"	"	910MC	910MC	Rotate UHF tuner shaft fully clockwise.	"	A75	Adjust to place marker in trap notch. Repeat steps 33 and 34 until the marker is in the trap notch at both ends of the band.
35.	"	"	530MC	530MC	UHF (See remarks)	"		Rotate UHF tuner shaft until the 530MC marker falls in trap notch. Retune sweep SLIGHTLY if necessary to center marker and notch on scope.
36.	"	"	"	"	UHF (leave as in above step)	Disconnect coaxial cable at the VHF tuner and connect a 33Ω carbon resistor from inner conductor to cable shield. Connect vertical amplifier across the 33Ω resistor thru an audio amplifier.	A76, A77	Connect a short across points Ⓙ and Ⓚ. With .1 volts peak to peak input, calibrate scope to produce 2 inches of deflection. Adjust A76 and A77 for symmetrical response on either side of the marker as in Fig. 6. Remove the short between points Ⓙ and Ⓚ. Remove the 33Ω resistor and reconnect coaxial cable.
37.	"	"	880MC	880MC	UHF (See Remarks)	Vert. Amp. thru 10K to point Ⓖ. Low side to chassis.		Rotate UHF tuner shaft until marker falls in trap notch. Retune sweep SLIGHTLY if necessary to center notch and marker on scope.
38.	"	"	"	"	UHF (leave as in above step)	Same as step 36.	A78, A79	Connect a short between points Ⓙ and Ⓚ. Adjust for symmetrical response on either side of marker as in Fig. 6. Remove short from points Ⓙ and Ⓚ. Remove amplifier and 33Ω resistor. Reconnect coaxial cable. Repeat steps 35 thru 38 until symmetrical response is obtained at both 530MC and 880MC.

Check the response curve through out the entire UHF band and check for abnormally low gain points within the UHF tuning range. This is usually caused by insufficient oscillator injection and checked by measuring the crystal current. Disconnect the UHF output cable and connect a 0-5MA meter across output cable. The crystal current should be between .65 and 3 milliamperes under normal conditions. If the reading is outside these limits, adjust the oscillator injection loops (A80) with respect to the crystal clip terminals.

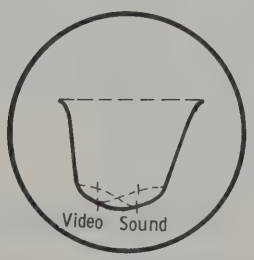


FIG. 3

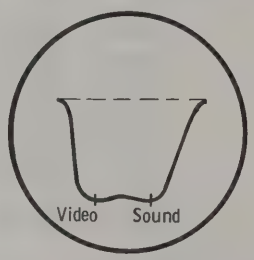


FIG. 4

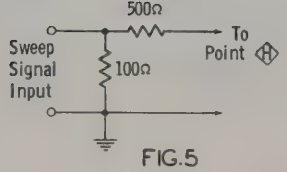


FIG.5

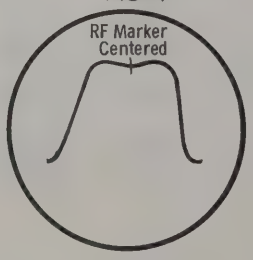
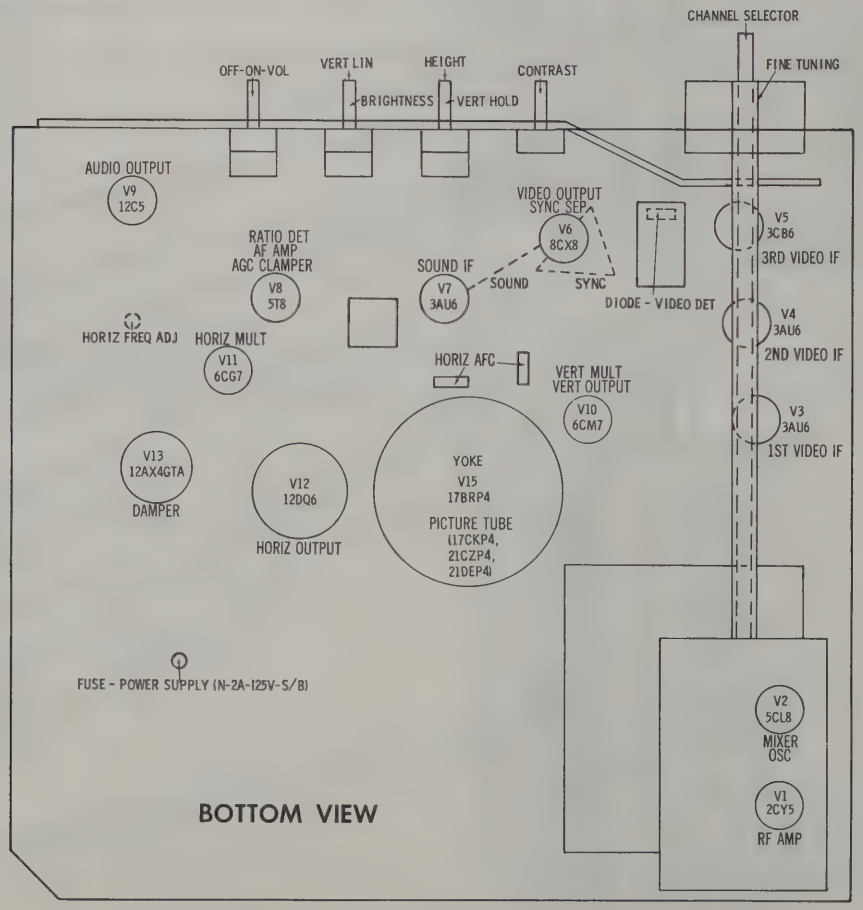


FIG. 6

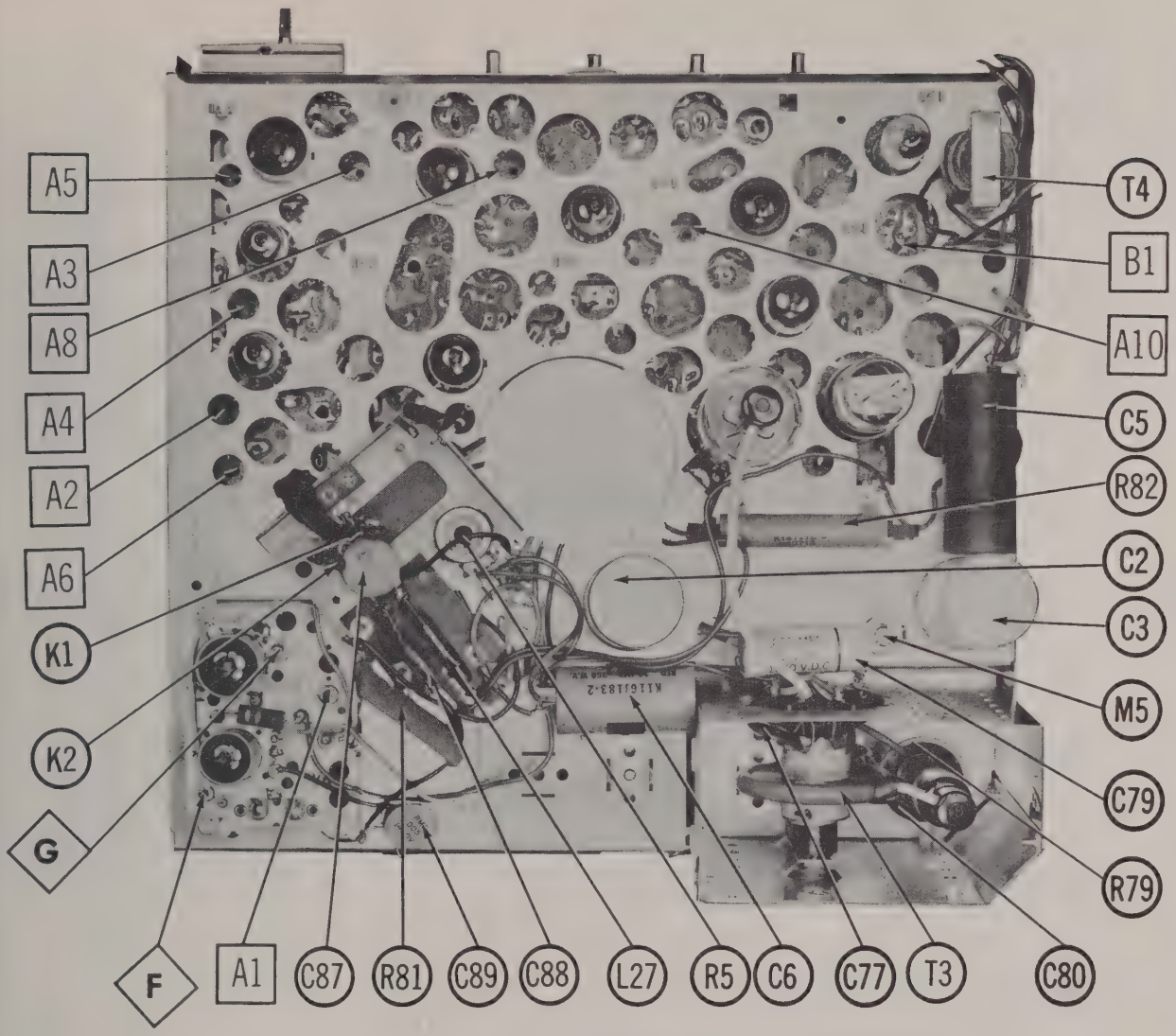
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	2CY5	1.4Meg	0Ω	2Ω	1.5Ω	†10K	▪ 8500Ω	0Ω		
V2	5CL8	15K	▪ 8200Ω	0Ω	0Ω	1.5Ω	▪ .1Ω	▪0Ω	0Ω	260K
V3	3AU6	2.3Meg	0Ω	9.5Ω	10Ω	▲ 47Ω	▲ 47Ω	47Ω		
V4	3AU6	▲ 33K	†270K	10Ω	10.5Ω	†220Ω	†220Ω	▲ 100Ω		
V5	3CB6	.1Ω	180Ω	10.5Ω	11.5Ω	▪ 220Ω	▪ 220Ω	0Ω		
V6	8CX8	0Ω	2.4Meg	†330K	11.5Ω	13.5Ω	75Ω	1Meg	▪850Ω	†5000Ω
V7	3AU6	2.7Ω	0Ω	4.5Ω	5.5Ω	▪ 3300Ω	▪ 3300Ω	180Ω		
V8	5T8	INF	22K	INF	5.5Ω	6.5Ω	2.3Meg	0Ω	6.8Meg	†680K
V9	12C5	20K	300K	6.5Ω	9.5Ω	300K	†330Ω	†580Ω		
V10	6CM7	‡2000Ω	NC	0Ω	20Ω	18Ω	• †3.3Meg	• 1.1Meg	• 2Meg	0Ω
V11	6CG7	†15K	1.7Meg	1200Ω	3.5Ω	4.5Ω	†75K	34K	1200Ω	0Ω
V12	12DQ6	0Ω	23Ω	NC	†10K	820K	0Ω	20Ω	0Ω	TOP CAP ‡30.5Ω
V13	12AX4GTA	NC	NC	¶	NC	†0Ω	NC	27Ω	23Ω	
V14	1X2A	PINS 1 THRU 9 HAVE INFINITE RESISTANCE								TOP CAP ‡385Ω
V15	17BRP4	16Ω	47K	750K	‡100K	NC	NC	270K	18Ω	

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 255V SOURCE.
‡ MEASURED FROM PIN 3 OF V13.
▪ MEASURED FROM 135V SOURCE.
▲ MEASURED FROM PIN 2 OF V4.
NC NO CONNECTION.

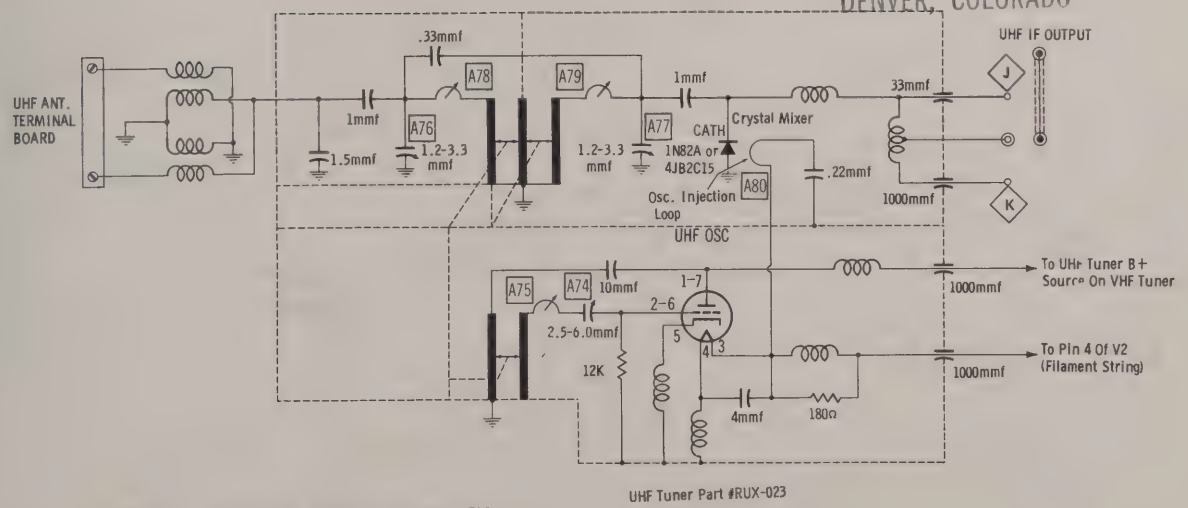


TUBE PLACEMENT CHART



CHASSIS TOP VIEW

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

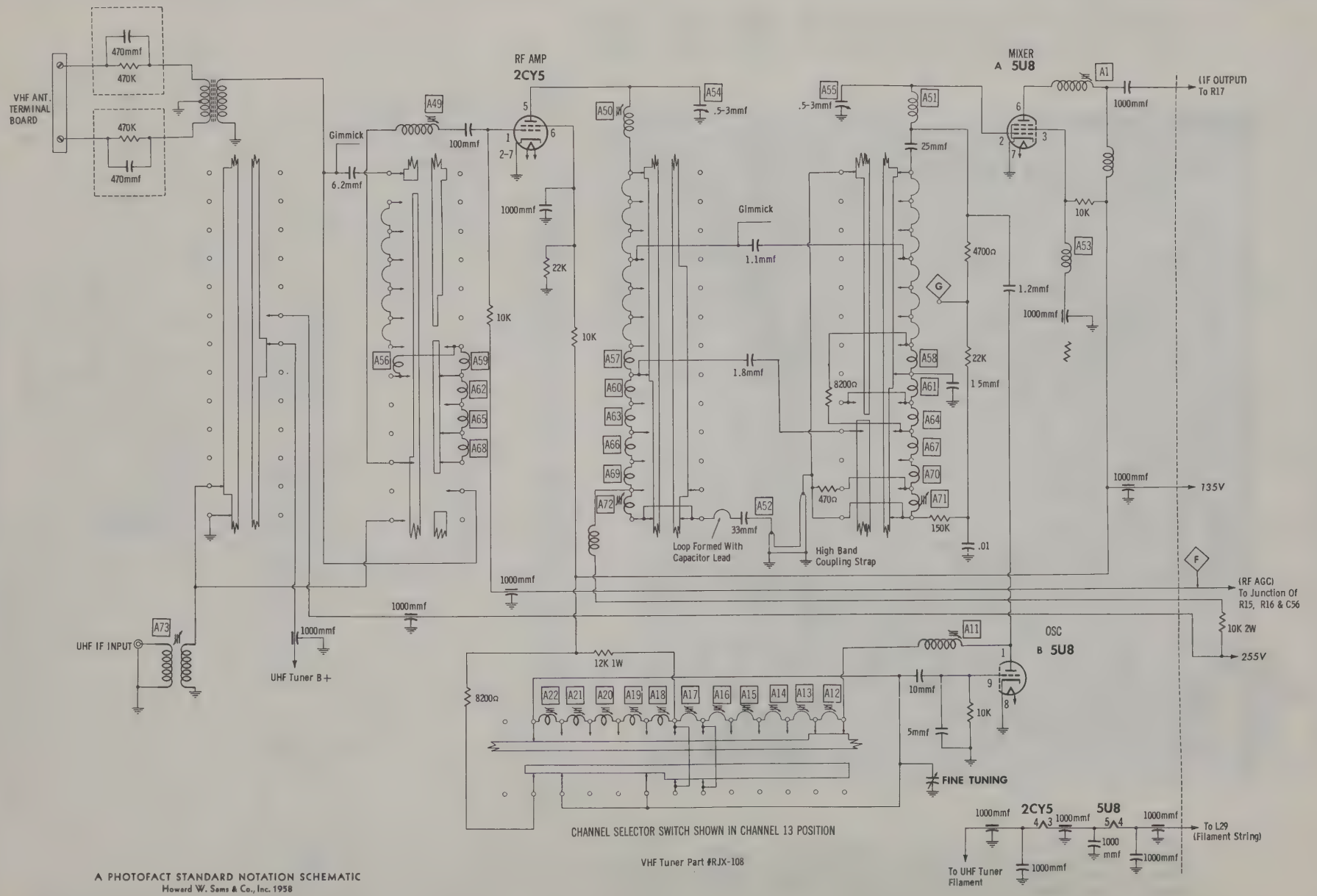


UHF Tuner Part #RUX-023

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

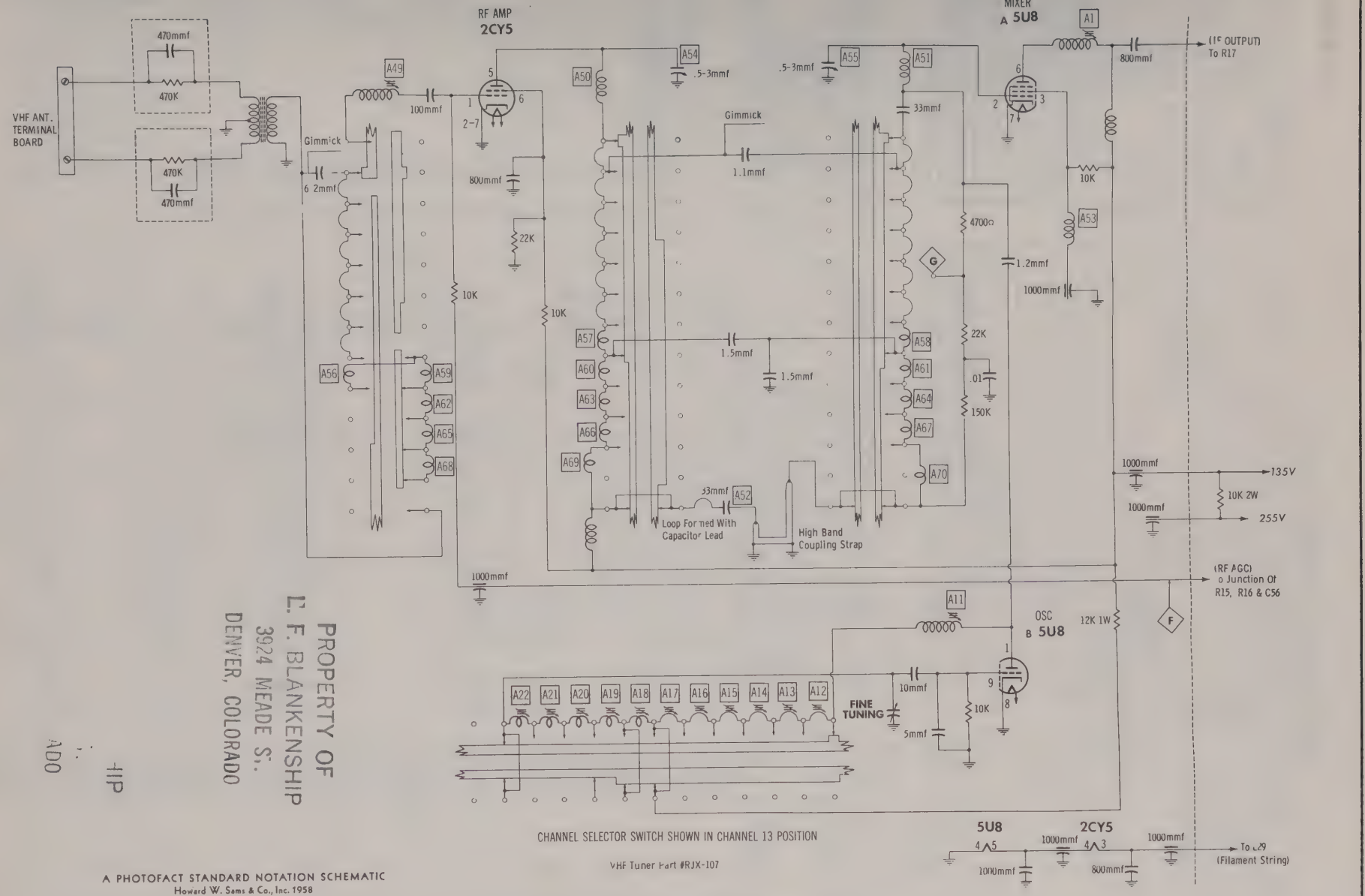
ALTERNATE TUNER SCHEMATIC

SET 390 FOLDER 1



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

ALTERNATE TUNER SCHEMATIC



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

ALTERNATE TUNER SCHEMATIC

HOTPOINT MODELS 17S305, 17S306, 21S400, 21S405, 21S505, 21S506 (M3 Line)

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	R F Amplifier	3CY5	
V2	Mixer-Osc	5CL8	
V3	1st Video I F Amp	3AU6	
V4	2nd Video I F Amp	3AU6	
V5	3rd Video I F Amp	3CB6	
V6	Video Output-Sync Sep	8CX8	
V7	Sound I F Amp	3AU6	
V8	Ratio Det - A F Amp - A G C Clamper	6T8	
V9	Audio Output	12C5	
V10	Vert Mult - Vert. Output	6CM7	
V11	Horiz Mult	6CG7	
V12	Horiz Output	12DQ6	
V13	Damper	12AX4GT.A	
V14	HV Rectifier	1X1A	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: HOTPOINT PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	NOTES
V15	17BHP4	17BHP4	17BRP4 [2]	1 Aluminized 2 Silver screen 65 3 Manufacturer recommends replacing with 17BHP4 and changing tub brap 4 Manufacturer recommends replacing with 21CEP4 and changing tub brap
	17CKP4 [3] 21CEP4 21DEP4 [4]	17BRP4 [1] 21CEP4 [1] 21CEP4	17BRP4 [1]	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: HOTPOINT PART No	AEROVOX PART No	CORNELL DUBILIER PART No.	MALLORY PART No	PYRAMID PART No	SANGAMO PART No	SPRAGUE PART No	NOTES
C1	150	150	RCE-233	AFH2-33	XA0261	TF017	TMS-25	TM-15150	TVL-1429	
C2A	45	350	RCE-269	AFH3-/55-50	C1325	FJ327 4		T-447	TVL-3810	
B	60	150								
C	100	10								
C3A	250	300	RCE-256	AFH2-52-65	BC608	FJ181 [5]C446		S-200 [5]MT-13100	R3339 *	
B	100	150								
C4	4	50	RCE-235	PRS250V4	BBR4-50	TC30	TD-4-50	MT-0504	TVA-1402	
C5	100	150	RCE-233	AFH2-33	XA0246	TF018	TMS-25	S-090	TVL-1433	
C6	350	350	RCE-253 [1]	PRS350V30	BB2053	TC77	TD-30-350	MT-4630	TVA-4610	

* Non-catalog item.
[1] Alternate part #RCE-276.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: HOTPOINT PART No	AEROVOX PART No	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No	SPRAGUE PART No	NOTES
C7	15		RCW-3214							NPO 10%
C8	5		RCW-3213	NPO-81 5		C10V5C	TCO-5	ZT-555		10%
C9	1000		RCW-3288	EF-001	MFT-1000				503C-DI	
C10	1000		RCW-3213				ED-1000			10%
C11	39		RCK-035							10% [1]
C12	39									2
C13	47		RCW-3287	N750-81 47	TCN-47	C10Q47U	TCT-47	NT-5447	57CU-Q47	N750 5%
C14	3		RCK-035							10% [3]
C15	4		RCW-3270							
C16	10000		RCW-3288	BPD-01	DD-103	BYA501	ED-01	DC511	5HK-81	
C17	2		RCW-3208		TCZ-20	C10QZC	TCO-20			NPO 5%
C18	2 0		RCK-020	NPO-81 2. 2	TCZ-2R3	C10V2C	TCO-2. 2			5%
J1	10		RCW-3248							5% N330
C20	1. 8		RCW-3247							N80 5%
C21	1000		RCW-3289	EF-001	MFT-1000				503C-DI	
C22	1000		RCW-3289	EF-001	MFT-1000				503C-DI	
C23	1000		RCW-3289	EF-001	MFT-1000				503C-DI	
C24	1000		RCW-3289	EF-001	MFT-1000				503C-DI	
C25	1000		RCW-3213	BPD-001	DD-103	BYA501	ED-1000	DC511	5HK-DI	10%
C26									5EK-DI	10% [2]
C27	1000		RCW-3289	EF-001	MFT-1000				503C-DI	
C28	1000		RCW-3213	BPD-001	DD-103	BYA501	ED-1000	DC511	5HK-DI	10%
C29	1000		RCW-3213	BPD-001	DD-103	BYA501	ED-1000	DC511	5HK-DI	10%
C30	30		RCW-3173	NPO-81 30	TCZ-30	C10Q3C	TCO-30	ZT-543	57CC-Q3	NPO 5%
C31	800		RCW-3037							
C32	047	200	RCW-3140	P288N-047	DF-503	CUB2E47		GEM-4147	2TM-S47	10%
C33	750		RCW-3211							
C34	800		RCC-140							
C35	800		RCC-140							
C36	680		RCW-3221				ED-680			10%
C37	680		RCW-3083							10%
C38	800		RCC-140							
C39	30		RCW-3288			C10Y4C				NPO 5%
C40	8		RCW-3087	NPO-81 8	TCZ-4R7	C10Y8C	TCO-8	ZT-866	87CCB-V8	5%
C41	800		RCW-3037							
C42	047	200	RCB-015							10%
C43	1000		RCW-3288	BPD-01	DD-103	BYA501	ED-01	DC511	5HK-81	
C44	10000		RCW-3166	BPD-01	DD-103	BYA501	ED-01	DC511	5HK-81	
C45	33		RCW-3189	NPO-81 33	TCZ-33	C10Q33C	TCO-33	ZT-5433	57CC-Q33	NPO 10%
C46	47		RCW-3287	NPO-81 47	TCN-47	C10Q47C	TCT-47	NT-5447	57CU-Q47	N750 10%
C47	1	600	RCB-026							10%
C48A	10000	1000	RCW-3284	DAC-37	DD8I-103	BYE10B1		GEM-1631	BL-810	10% [3]
B	10000	1000		DAC-37	DD8I-103	BYE10B1		GEM-1631	BL-810	10% [4]
C49	800		RCW-3037							
C50	30		RCW-3173	NPO-81 30	TCZ-30	C10Q3C	TCO-30	ZT-543	57CC-Q3	NPO 5%
C51	3900		RCW-3186							10%
C52	3900		RCW-3214	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C53	800		RCW-3037							
C54	10000		RCW-3260	BPD-01	DD-103	BYA501	ED-01	DC511	5HK-81	
C55	20000		RCW-3241	BPD-02	DD-203	BYB502	ED-02		5HK-82	
C56	18	200	RCB-053							10%
C57	5000		RCW-3214	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C58	16	600	RCB-040							5% [2]
C59	0039	600	RCC-143							10% [3]
C60	033	600	RCB-051							10%
C61	033	600	RCB-051							10%
C62	033	600	RCB-051							10%
C63	018	1000	RCB-050							10%
C64	800		RCW-3184	BPD-0008	DD-801	L10T8	ED-0008		8GA-T8	10% [1]
C65	47		RCW-3287	N750-81 47	TCN-47	C10Q47U	TCT-47	NT-5447	57CU-Q47	N750 10%
C66	82		RCW-3257				ED-82			NPO 10%
C67	1200		RCW-3167				ED-1200			10%
C68	930		RCW-3280							10%
C69	750		RCW-3211				ED-750			10%
C70	5000		RCW-3214							10%
C71	18	300	RCB-053							10%
C72	150		RCW-347	1464-0009E		1R5TN				5%
C73	0082	600	RCB-048							10%

CAPACITORS (cont)

ITEM No.	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: HOTPOINT PART No	AEROVOX PART No	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No	SPRAGUE PART No.	NOTES
C74	460		RCW-3282				ED-560			10%
C75	5000		RCW-3214							10%
C76	1	800	RCC-141	P288N-1	DF-104	CUB2F1		GEM-601	5TM-P1	
C77	180	3000	RCW-3255							N1800 10%
C78	360	6000	RCW-3287							[3] N3600 10%
C79	.066	600	RCM-066							10%
C80	500	30000	RCW-3219		TV-30		413-1			[4]
C81	800		RCW-3037							
C82	800		RCW-3037							
C83	800		RCW-3037							
C84	800		RCW-3037							
C85	800		RCW-3037							
C86	800		RCW-3037							
C87	20000	1400	RCW-3242	P288N-03				GEM-1613		[3]
C88	10000	1400	RCW-3286	DAC-2T	DD8I-103	BYE10B1		GEM-1611	BL-810	
C89	5000	1400	RCW-3246	DAC-3	DD8I-502	BYE10D5		GEM-1625	BL-D50	[4]
C90	1000	1400	RCW-3231	DAC-1	DD8I-102	BYA501M		GEM-1621	BL-I10	

[1] Some versions use a .36MMF in this application.
[2] Some versions use a .33MMF in this application.
[3] Some versions use a 1. 0MMF in this application.
[4] Not used in some versions.
[5] Some versions use a 370MMF 10% 4KV N600 Ceramic in this application (Part #RCW-3240).
[6] Some versions use an 800MMF 500V in this application (Part #RCW-3037).
[7] Late production versions use .003MFD 1000V (Part #RCB-053) in this application.
[8] Late production versions use 900MMF 1000V (Part #RCW-3376) in this application.
[9] Late production versions use .022MFD 600V (Part #RCN-091) in this application.
[10] Late production versions use separate units C48A becomes .05MFD 1000V (Part #RCN-107) and C48B remains same value (Part #RCN-091)

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HOTPOINT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	500K		RRC-378					Volume & Switch
R2A	300K		RRC-431					Brightness
B	3Meg							Vert. Lin.
R3A	1. 5Meg		RRC-430					Vert. Hold
B	600K							Height
R4	15K		RRC-429					Contrast - Tap @ 10K
R5A	1Meg		RRC-396	AB-69	A47-1Meg-S	Q1-137	PTA1254L	Horiz. Hold
B	Shaft			AK-19	RN-3	TQ	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING: OHMS	RATING: WATT	HOTPOINT PART No	NOTES
R6	12K			
R7	33K			
R8	10K			
R9	15K			
R10	27K			
J11	220K			
R12	15K			
R13	6300Ω			Note 1
R14	10K	2		
R15	2. 2Meg			
R16	1. 8Meg 5%			
R17	22Ω			
R18	7500Ω 5%			
R19	3. 3Meg			
R20	47Ω			
R21	47Ω			
R22	15K			Note 2
R23	470K			
R24	470K			
R25	33K 5%			
R26	22Meg			
R27	18Meg			
R28	220Ω			
R29	100Ω			
R30	220Ω			
R31	180Ω			
R32	2900Ω			Note 3
R33	1000Ω 5%			Note 13
R34	22K			
R35	1Meg			
R36	22K			
R37	1000Ω			
R38	2200Ω			
R39	47K			Note 4
R40	2. 2Meg		RRD-007	Note 5
R41	1. 2Meg			Note 8
R42	100K			
R43	220K			Note 7
R44	5300Ω			Note 8
R45	180Ω			

ITEM No.	RATING: OHMS	RATING: WATT	HOTPOINT PART No	NOTES
R46	22K			
R47	330Ω	1		
R48	18Meg 5%			
R49	3. 3Meg			
R50	3. 9Meg			
R51	330K			
R52	180K			
R53	620K			
R54	2. 7Meg			
R55	3300Ω			Note 1
R56	1Meg			
R57	56K			
R58	68K			
R59	47K			
R60	2200Ω			
R61	470Ω			
R62	15K			
R63	5. 6Meg 5%			
R64	100K 5%			
R65	390K			
R66	560K			Note 9
R67	1. 2Meg			
R68	56K			Note 11
R69	15K	1		
R70	39K			
R71	820K			
R72	47K			
R73	27K			
R74	15K			
R75	13000Ω 5%			
R76	100Ω			
R77	680K			
R78	10K	2		Note 10
R79	2. 2Ω			
R80	56000Ω	7	RRW-173	Note 13
R81	6Ω	15		
R82	6Ω	25	RRW-148	
R83	22K			
R84	75Ω 5%			

Note 1. Some versions may use a 47000 in this application
Note 2. Some versions may use a 18K in this application
Note 3 Some versions may use a 3300Ω in this application
Note 4. Some versions may use a 82K in this application.
Note 5. Some versions may use a 4. 7Meg in this application.
Note 6. Some versions may use a 2. 2Meg in this application.
Note 7. Some versions may use a 180K in this application.
Note 8. Some versions may use a 68000 in this application.
Note 9. Some versions may use a 1. 5Meg in this application.
Note 10. Some versions may use a 12K, 2W in this application.
Note 11. Some versions may use a 18K, 5%, 1W in this application
Note 12. Late versions use 8100Ω, TW (Part #REW-176) in this application.
Note 13 Late production models use 270K in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: HOTPOINT PART No.	Hallderson PART No.	Merit PART No.	Rem PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	Vert. Output	RTO-212	Z1807 [1]	A-3087					
T1A	Yoke-Horiz. (2. 6MH)	RLD-080		MDP-106	V2I5 [1]	VO-101 [2]	26B76 [1]	11HX	
B	(10Ω) Vert (42MH)								
T2	Horiz. Output	RTO-208		HVO-186					

[1] Cut and tape blanking lead.
[2] Drill new mounting hole(s).

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: HOTPOINT PART No.	Hallderson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T4	24000	3-4Ω	RTO-213	Z1101	A-3025	A-3322	24B53	S-12X	

SPEAKER

ITEM No.	TYPE: SIZE	TYPE: FIELD	TYPE: V C IMP	REPLACEMENT DATA: HOTPOINT PART No.	Merit PART No.	NOTES
SP1	4	PM	3-4Ω	ROP-035 [1]	4A07	1 Used in Models 175305, 306, 215400, 405
	8	PM		S-825DT [2]		2 Used in Models 215505, 506

COILS (RF-IF)

ITEM No.	USE	HOTPOINT PART No.	NOTES
L1	Ant. Trans.	RLA-046	
L2	Ant. Coils	RBX-092	
L3			Channel 2-13, includes wafer assembly
	RF Coils	RBX-095	Channel 2-13, includes wafer assembly
L4	Mixer Grid Coils	RBX-094	Channel 2-13, includes wafer assembly

ITEM No.	USE	HOTPOINT PART No.	NOTES
L5	Osc. Coils	RBX-095	Includes wafer assy. and rotor
L6	Osc. Coil	RLJ-373	Channel 6
L7	Osc. Coil	RLJ-417	Channel 13
L8	RF Choke	RLJ-444	
L9	Mixer Plate Coil	RLJ-374	

ITEM No.	USE	REPLACEMENT DATA: HOTPOINT PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L10	47. 25MC Trap	RLJ-435				
L11	RF Choke	RLJ-360				.1 Microhenry
L12	1st. Video IF	RLJ-391				
L13	2nd. Video IF	RTL-216				
L14	3rd. Video IF	RTL-217				
L15	4th. Video IF	RLJ-434				Includes assembly
L16	RF Choke	RLJ-448 [3]	19-1000			1. 83 Microhenry, IRC Part #CLA
L17	RF Choke	RLJ-301				22 Microhenry
L18	RF Choke	RLJ-340 [3]				5. 6 Microhenries, IRC Part #CLA - Note
L19	RF Choke	RLJ-340				560 Microhenries 100 Microhenries
L20	Shunt Peaking Coil	RLJ-420 [3]				
L21	Series Peaking Coil	RLJ-207				
L21A	4. 5MC Trap	RLJ-413				
B	Sound IF					
L23	Shunt Peaking Coil	RLJ-446 [4]				750 Microhenries
L24	Series Peaking Coil	RLJ-445 [5]				270 Microhenries
L25	Ratio Det.	RTD-030			6305-PC *	Includes 220Ω resistor
L26	RF Choke	RLJ-353				10 Microhenries, IRC Part #CL-1
L27	Line Choke	RLJ-430				130 Microhenries
L28	Fil. Choke	RLJ-085				2. 2 Microhenries, IRC part #CLA
L29	Fil. Choke	RLJ-086				3. 3 Microhenries, IRC part #CLA

[1] Some versions may use part #RLJ-423 (1. 2 Microhenries).
[2] Some versions may use part #RLJ-450 (7. 5 Microhenries).
[3] Some versions may use partRLJ-451 (560 Microhenries) or RLJ-455 (470 Microhenries).
[4] Some versions may use 820 Microhenries or part #RLJ-457 (560 Microhenries).
[5] Late versions use part #RLJ-454 (300 Microhenries).
* Not used in some versions.
* Connect 220Ω resistor to tertiary winding.

TRANSFORMER (HORIZ. OSC.)

ITEM No	DC RES: PRI	DC RES: SEC	HOTPOINT PART No	Meissner PART No.	Merit PART No.	Miller PART No.	Rem PART No.	Thordarson PART No.	NOTES
L30	75Ω		RLJ-431						Horiz. Freq.

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D C RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA: HOTPOINT PART No.	Hallderson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L31	230A	37Ω	1 HY	RLF-079	C5037 [1]	C-2974 [1]	C-2326 [1]	28C44 [1]	C-37X

[1] Drill one new mounting hole.

HOTPOINT MODELS 175305, 175306, 215400, 215405, 215505, 215506 (M3 Line)

FOLDER 1

PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	HOTPOINT PART No.	REPLACEMENT DATA
K1	Antenna Isolation	470MMF @ 1500VAC , .3-1Meg	RCR-002	Centralab RC-471 Sprague R-9177
K2	Antenna Isolation	470MMF @ 1500VAC, .3-1Meg	RCR-002	Centralab RC-471 Sprague R-9177
K3	Sync Couplate	470MMF, 470K	RCR-003	Centralab RC-465 Sprague R-9176
K4	De-Emphasis	1000MMF, 10000MMF, 4000MMF, 22K	REK-012	Centralab PC-186 Sprague PB-3
K5	Audio Output	10000MMF, 10000MMF, 6.8Meg, 510K, 1000Ω, 470K, 680K	REK-021	
K6 A	Vert. Integrator	800MMF, 2000MMF, 15K, 68K, 100K	REK-013	
B	Vert. Integrator	800MMF, 2000MMF, 68K, 100K	REK-025	Used in late productions
K7	Chassis Isolation	470MMF @ 1500VAC, 1Meg	RCR-006	Sprague R-9193
K8	Chassis Isolation	470MMF @ 1500VAC, 1Meg	RCR-006	Sprague R-9193

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	HOTPOINT PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.230A	RER-030 ① ③	1356C ①	1N1007 ②	RS300SL ①	300 ①	① Selenium type. ② Germanium type. ③ Alternate Germanium Part #RER-032
M2	.230A	RER-030 ① ③	1356C ①	1N1007 ②	RS300SL ①	300 ①	
M3		RED-006 ②			1T1 ①		
M4		RED-006 ②			1T1 ①		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			HOTPOINT PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M5	N	2A 125V S/B	REF-033	RJW-006	333002. (N 2A 125V S/B)	346017	N2	HN 13/4 to 2 1/2

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		HOTPOINT PART No.	CBS PART No.	SYLVANIA PART No.	
M6		RED-001	1N60	1N60	Video Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	HOTPOINT PART No.	NOTES
M7	Tuner	RJX-101	VHF, 12 position
	Tuner	RJX-106	VHF, 13 position
	Tuner	RJX-107	VHF, 12 position
	Tuner	RJX-108	VHF, 13 position
	Tuner	RUX-023	UHF, with tube and crystal
M8	Centering Device	REA-019	
M9	Ion Trap	RET-016	Used with 17BRP4 picture tube
	Ion Trap	RET-017	Used with 21CZP4 picture tube
	Ion Trap	RET-018	Used with 17CKP4 or 21DEP4 picture tube

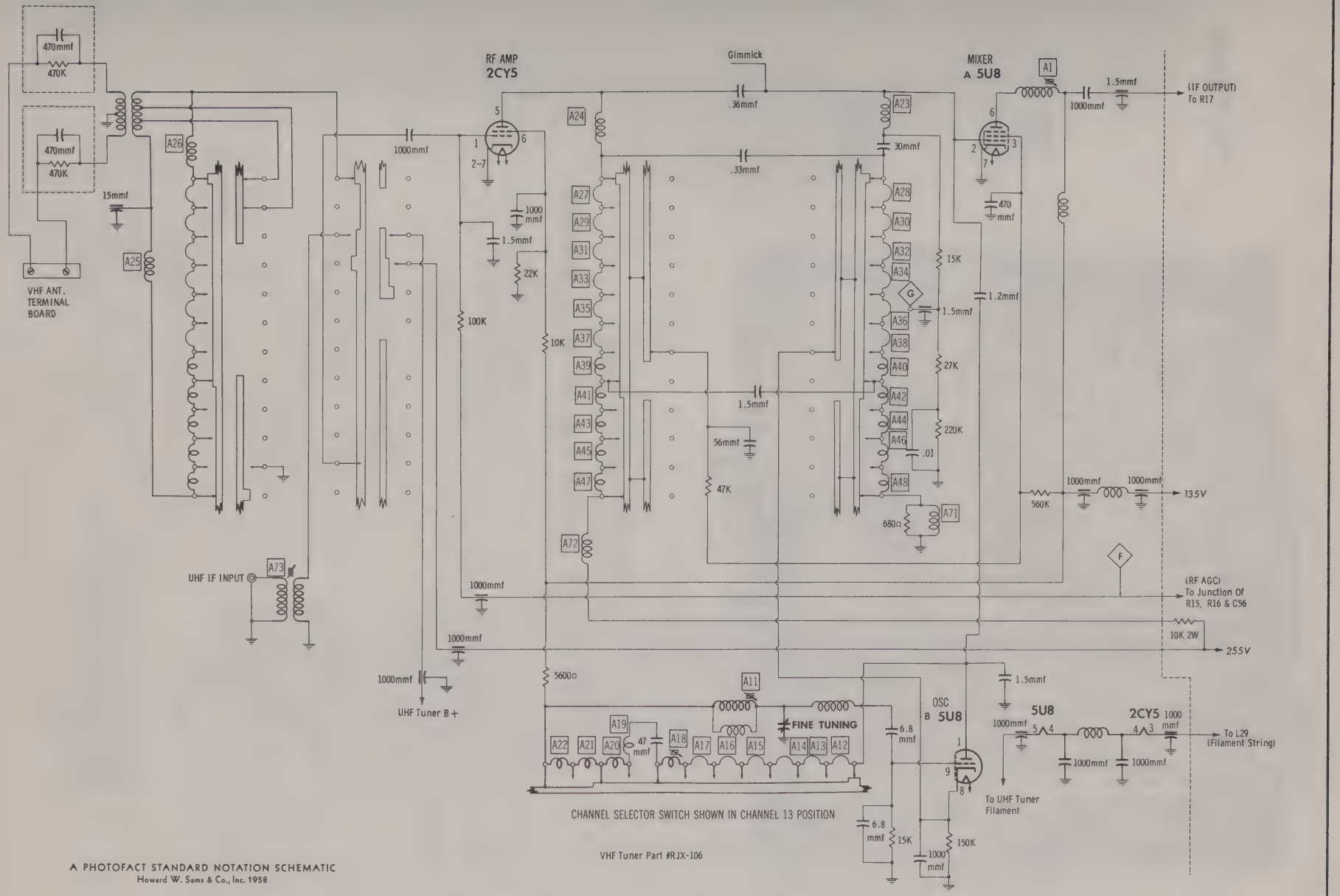
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	RDW-126	Models 17S305, 306
Safety Glass	RDW-129	Models 21S400, 405
Safety Glass	RDW-130	Models 21S505, 506
Mask	HDM-005	Models 21S405, 505, 506
Mask	HDM-007	Model 21S400
Cabinet Front	HAC-011	Models 17S305, 306
Handle	HHY-003	
Knob	HDK-022	Volume, contrast - Models 17S305, 306, 21S400
Knob	HDK-023	Vert., Brightness - " " " "
Knob	HDK-024	UHF-VHF Selector- " " " "
Knob	HDK-025	VHF Tuning - " " " "
Dial	HDK-026	UHF - " " " "
Knob	HDK-038	UHF-VHF Selector- " "
Knob	RDK-530	UHF-VHF Tuning- Models 17S305, 306, 21S400, 405, 505, 506
Knob	RDK-642	Volume - " " " " " " "
Knob	RDK-644	VHF Selector - " " " " " " "
Knob	RDK-647	Vert., Brightness - " " " " " " "
Dial	RDK-656	UHF - " " " " " " "

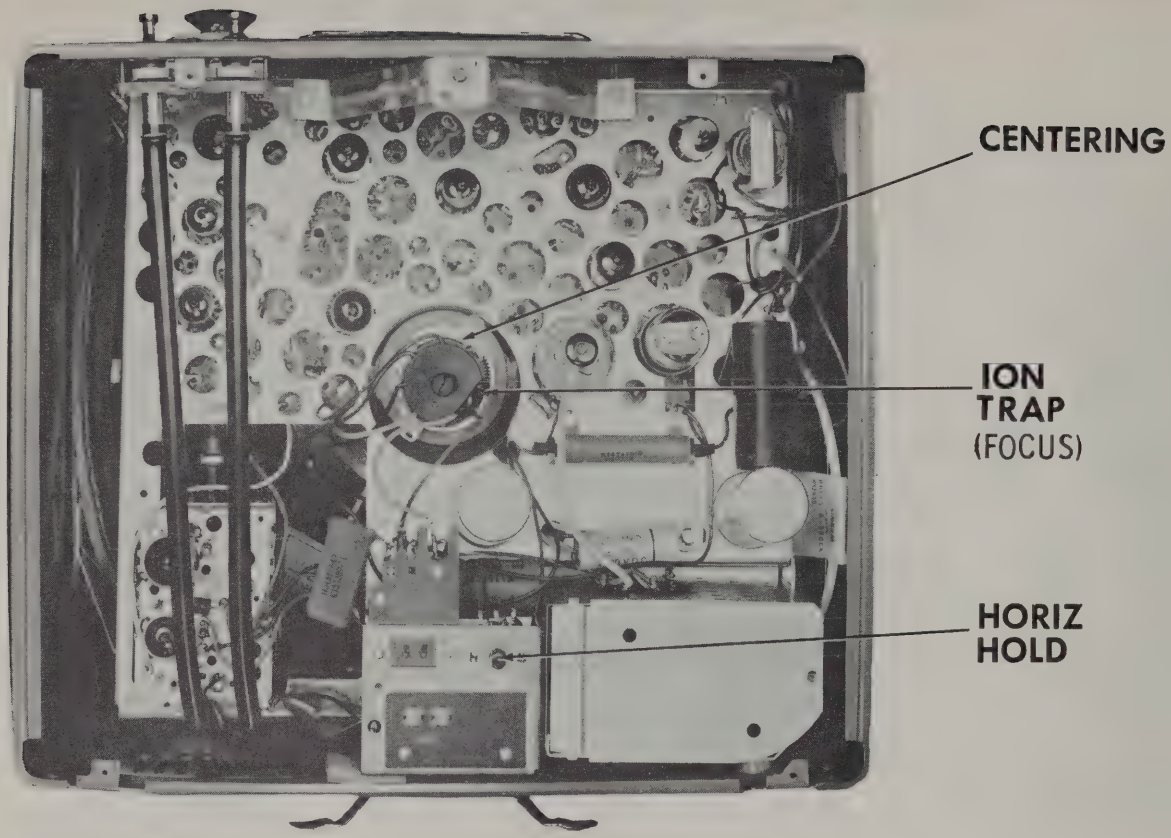
WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



ALTERNATE TUNER SCHEMATIC

HOTPOINT MODELS 17S305, 17S306, 21S400, 21S405, 21S505, 21S506 (M3 Line)



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

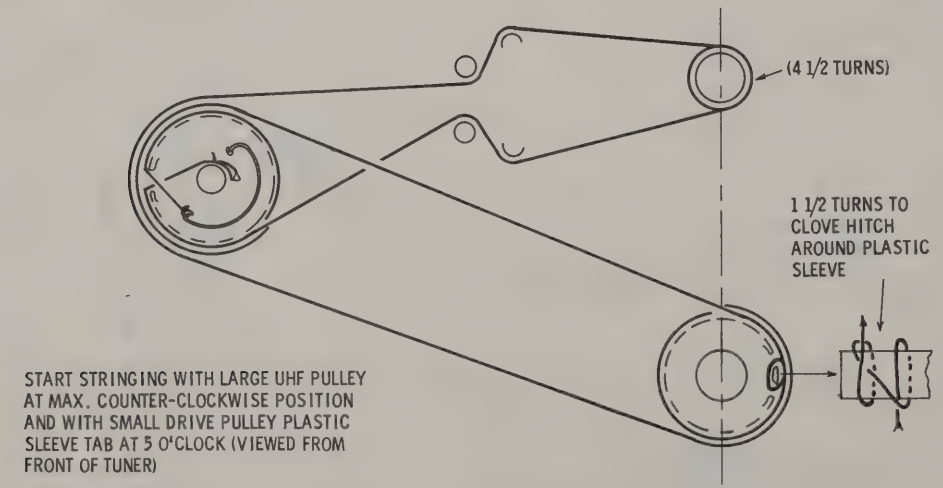
Connect a clip lead from point Ⓛ to Ⓜ.

Connect a 1000Ω resistor across the horizontal frequency coil (L30).

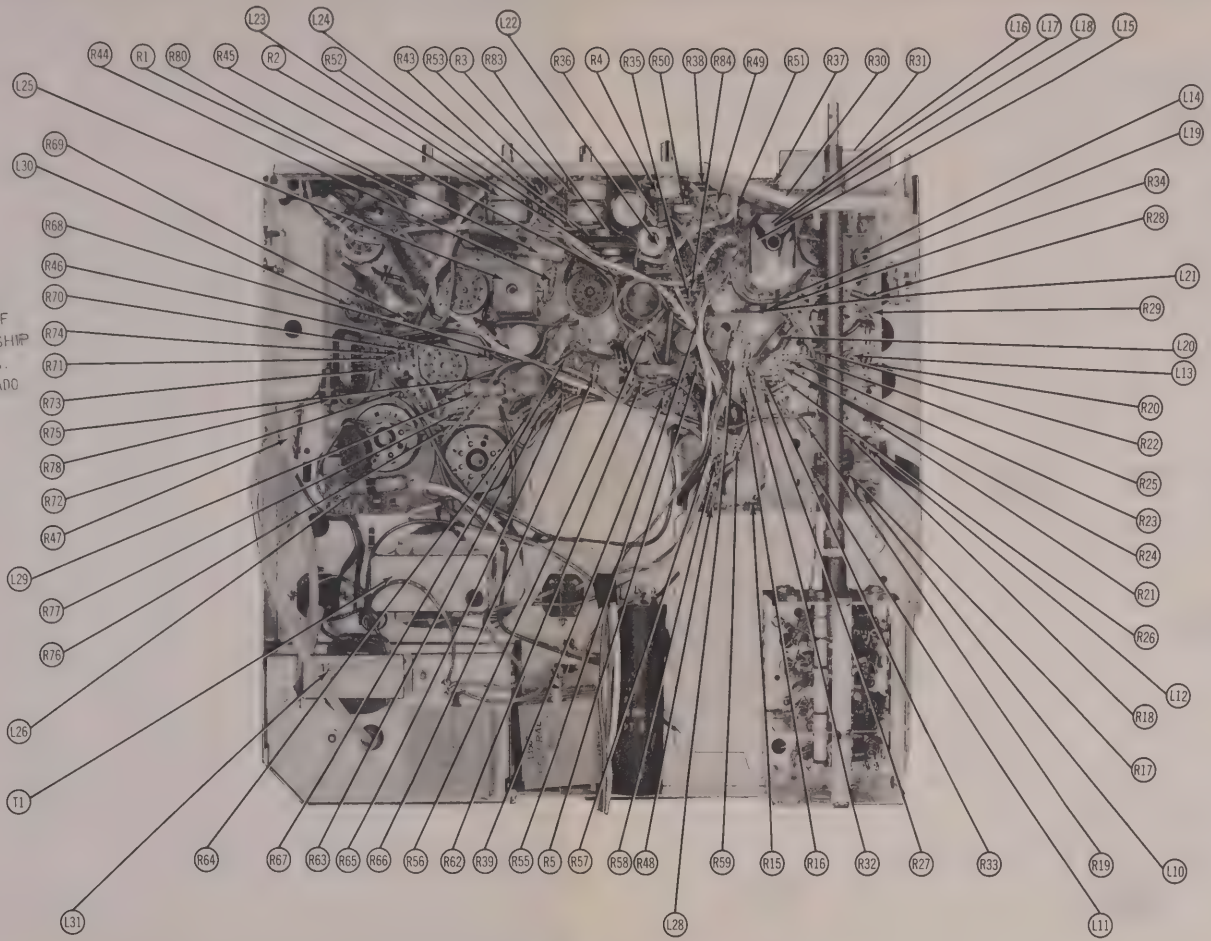
Adjust the horizontal hold control to the point where the picture appears to float back and forth across the screen.

Remove the resistor from across L30 and adjust the horizontal frequency slug (B1) so that the picture again floats back and forth.

Remove the clip lead from points Ⓛ and Ⓜ. Readjust the horizontal control, if necessary.



UHF DRIVE CORD STRINGING



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3114 MEADE S.
DENVER, COLORADO

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

DISASSEMBLY INSTRUCTIONS

MODEL 21-D-8568U (CH. KCS108F)

CHASSIS REMOVAL

1. Remove 10 push-on type knobs from the side.

2. Remove 6 wood screws holding the rear cover. Remove the rear cover.

3. Remove the antenna plug, pilot lamp plug, picture tube socket, yoke plug, speaker plug, tuner power cable and tuner output cable.

4. In model with remote tuning remove the remote control unit, tuning motor plug,and cable for the on-off and channel selector switches. Remove the selector switch assembly and corner brace for the remote control unit.

5. Remove 2 metal screws holding the volume-contrast control bracket.

6. Remove 2 metal screws holding the control bracket to the control case.

7. Remove 2 hex nuts at the top of the chassis and 2 metal screws at the bottom.

8. Partially remove the chassis. Remove the HV lead and remove the chassis.

TRADE NAME	RCA Victor	MODELS	CHASSIS
		21-D-8525, 21-D-8526, 21-D-8527, 21-D-8528, 21-D-8545, 21-D-8546, 21-D-8547, 21-D-8588, 21-D-8605, 21-D-8607, 21-D-8608, 24-D-8655, 24-D-8657	KCS108C
		21-D-8525U, 21-D-8526U, 21-D-8527U, 21-D-8528U, 21-D-8545U, 21-D-8546U, 21-D-8547U, 21-D-8588U, 21-D-8605U, 21-D-8607U, 21-D-8608U, 24-D-8655U, 24-D-8657U	KCS108D
		21-D-8565, 21-D-8566, 21-D-8567, 24-D-8676, 24-D-8678,	KCS108E
		21-D-8565U, 21-D-8566U, 21-D-8567U, 24-D-8676U, 24-D-8678U	KCS108F
		21-RD-8525	KCS108H

MANUFACTURER	Radio Corporation of America, RCA Victor Tele. Div., Camden 8, N.J.
TYPE SET	Television Receiver
TUBES	Twenty
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 215 Watts, 1.9 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments (located in a circle around the shaft) should be made in sequence from the highest to the lowest channel in the area. Channel 12 adjustment is located at 12 o'clock, proceed in a counter clockwise direction adjusting for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

There are 2 methods of removing the safety glass. On models with "U" shaped trim strips along the top and bottom edges pry them off starting at the extreme edges; slide the glass retainer at the top and bottom to release the safety glass and remove the retainers and safety glass. On models with a metal trim all the way around pry the trim outward beginning in the center of the bottom and continuing around to remove the trim; straighten the tabs holding the safety glass and remove the glass.

SPECIAL ADJUSTMENTS

A. AGC And Sync Stab.
Tune in the strongest station in the area. Turn the sync stab. control fully clockwise. Adjust the AGC control clockwise until a bend appears in the picture, then counter clockwise 1/4 turn. Adjust the fine tuning until a beat pattern appears in the picture and advance the AGC control to the point where the picture bends, then counter clockwise 1/8 turn. Adjust the horizontal hold as far counter clockwise as possible and still retain sync. Adjust the sync stab. control until a bend appears in the picture, then counter clockwise from 15 to 30 degrees. Adjust horizontal hold to the center of its range.

B. Automatic Channel Selection
To set up the channels to be received by remote tuning slide the switches on the back of the receiver to uncover the number of the desired channels.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Adjust horizontal hold control until picture synchronizes horizontally. If satisfactory results cannot be obtained by the above adjustment see Horizontal Sweep Circuit Adjustment.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A9) located on bottom of chassis.

FUSES

One fuse is used for horizontal sweep circuit protection. (For location, see tube placement chart). Some versions may use 3 fuses in the filament supply.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

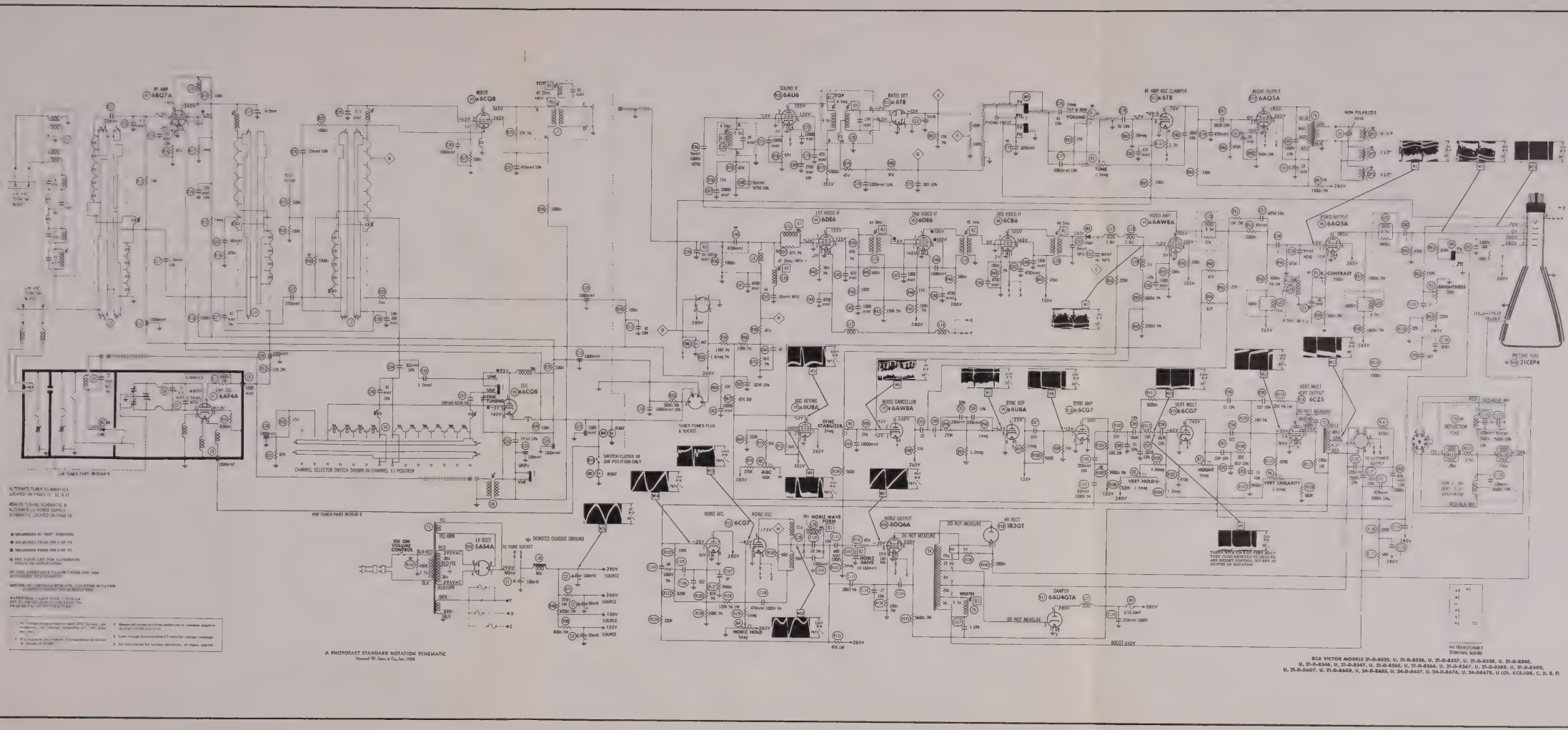
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H336

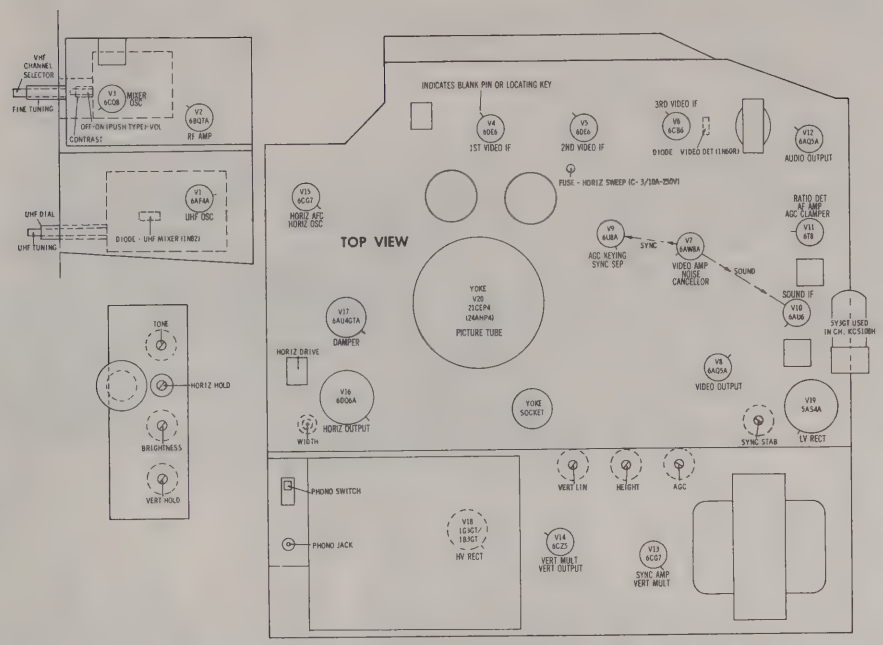
FOLDER 2

RCA VICTOR MODELS 21-D-8525, U, 21-D-8526, U, 21-D-8527, U, 21-D-8528, U, 21-D-8545, U, 21-D-8546, U, 21-D-8547, U, 21-D-8565, U, 21-D-8566, U, 21-D-8567, U, 21-D-8588, U, 21-D-8605, U, 21-D-8607, U, 21-D-8608, U, 24-D-8655, U, 24-D-8657, U, 24-D-8676, U, 24-D-8678, U (Ch. KCS-108, C, D, E, F)

RCA VICTOR MODELS 21-D-8525, U, 21-D-8526, U, 21-D-8527, U, 21-D-8528, U, 21-D-8545, U, 21-D-8546, U, 21-D-8547, U, 21-D-8565, U, 21-D-8566, U, 21-D-8567, U, 21-D-8588, U, 21-D-8605, U, 21-D-8607, U, 21-D-8608, U, 24-D-8655, U, 24-D-8657, U, 24-D-8676, U, 24-D-8678, U (Ch. KCS-108, C, D, E, F)


RF AMP V1 6BQ7A
MIXER V2 6CQ8
OSC V3 6CQ8
TOP
SOUND IF V10 6AU6
RATIO DET V11 6T8
AF AMP AGC CLAMPER V12 6T8
AUDIO OUTPUT V13 6AQ5A
1ST VIDEO IF V4 6DE6
2ND VIDEO IF V5 6DE6
3RD VIDEO IF V6 6CB6
VIDEO AMP V7 6AW8A
SYNC OUTPUT V8 6AQ5A
PICTURE TUBE V19 21CEP4
CONTRAST
BRIGHTNESS
VHF
UHF
FINE TUNING
CHANNEL SELECTION SWITCH SHOWN IN CHANNEL 13 POSITION
TUNER POWER PLUG & SOCKET
SWITCH CLOSED IN UHF POSITION ONLY
VHF TUNER PART #180A-E
UHF TUNER PART #180A-A
AGC KEYING V14 6U8A
SYNC STABILIZER
NOISE CANCELLER V9 6AW8A
SYNC SEP V6 6U8A
SYNC AMP V15 6CG7
VERT MULT V16 6CG7
VERT MULT VERT OUTPUT V17 6CZ5
HEIGHT
VERT HOLD
VERT LINEARITY
DEFLECTION YOKE
HORIZ AFC V15 6CG7
HORIZ OSC
HORIZ WAVE FORM
HORIZ DRIVE
HORIZ OUTPUT V20 6DQ6A
HV RECT V18 1B3GT
DAMPER V17 6AU4GTA
WIDTH
HORIZ HOLD
ON VOLUME CONTROL
LV RECT V19 5AS4A
TO YOKE SOCKET
DENOTES CHASSIS GROUND
DO NOT MEASURE
DO NOT MEASURE
DO NOT MEASURE
BOOST 610V
ALTERNATE TUNER SCHEMATICS LOCATED ON PAGES 11, 12, & 17
REMOTE TUNING SCHEMATIC & ALTERNATE LV POWER SUPPLY SCHEMATIC LOCATED ON PAGE 13
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958
RCA VICTOR MODELS 21-D-8525, U, 21-D-8536, U, 21-D-8537, U, 21-D-8538, U, 21-D-8545, U, 21-D-8546, U, 21-D-8547, U, 21-D-8565, U, 21-D-8566, U, 21-D-8567, U, 21-D-8588, U, 21-D-8605, U, 21-D-8607, U, 21-D-8608, U, 24-D-8655, U, 24-D-8657, U, 24-D-8676, U, 24-D8678, U (Ch. KCS-108, C, D, E, F)

TUBE PLACEMENT CHART



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DENVER, COLORADO

TUBE FAILURE CHECK CHART

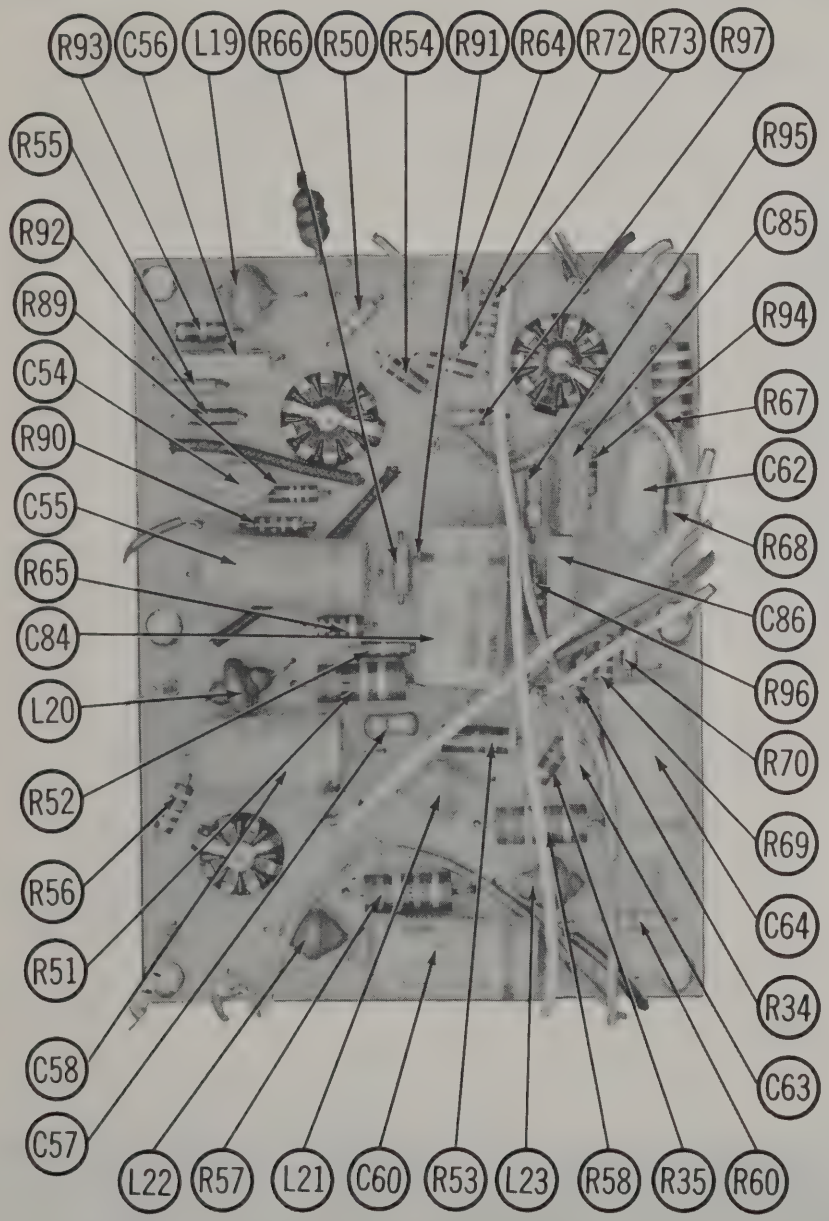
The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **V19, Some versions use 3 Filament Fuses**

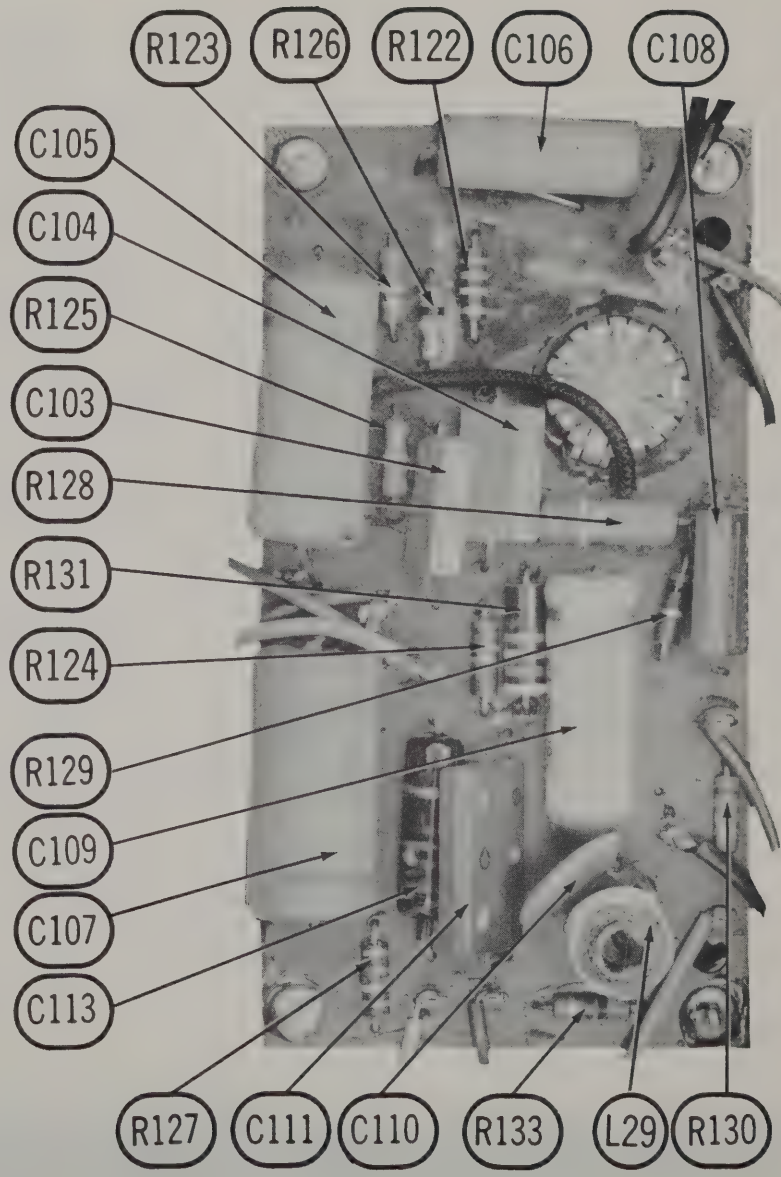
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V4, V5, V6, Diode (M3), V7**
No pic, no sound, has snow - **V2, V3, V4, (V1 UHF only)**
No pic, has sound, has raster - **V8, V20**
Has pic, no sound - **V10, V11, V12**
Overloaded picture - **V9**

SYNC FAILURE
No vert. sync - **V7, V9, V13**
No horiz. sync - **V7, V9, V13, V15**
No vert. or horiz. sync - **V7, V9, V13**

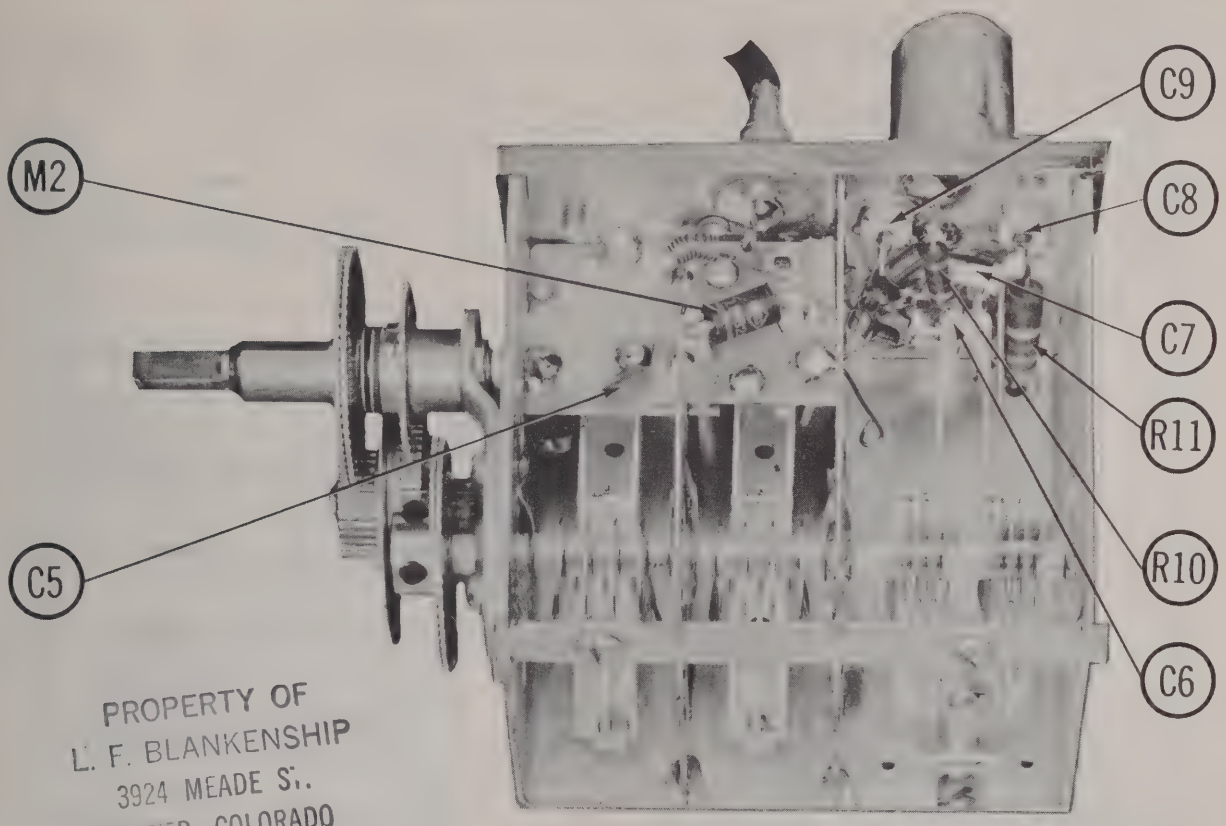
SWEEP FAILURE
No raster, has sound - **Fuse (M1), V15, V16, V17, V18, V20**
No vertical deflection - **V13, V14**
Poor vert. linearity or foldover - **V13, V14**
Poor horiz. linearity or foldover - **V15, V16, V17**
Narrow picture - **V15, V16, V17, V20**
Vert. off freq. - **V13, V14**
Horiz. off freq. - **V15**



VIDEO PRINTED BOARD



HORIZONTAL PRINTED BOARD



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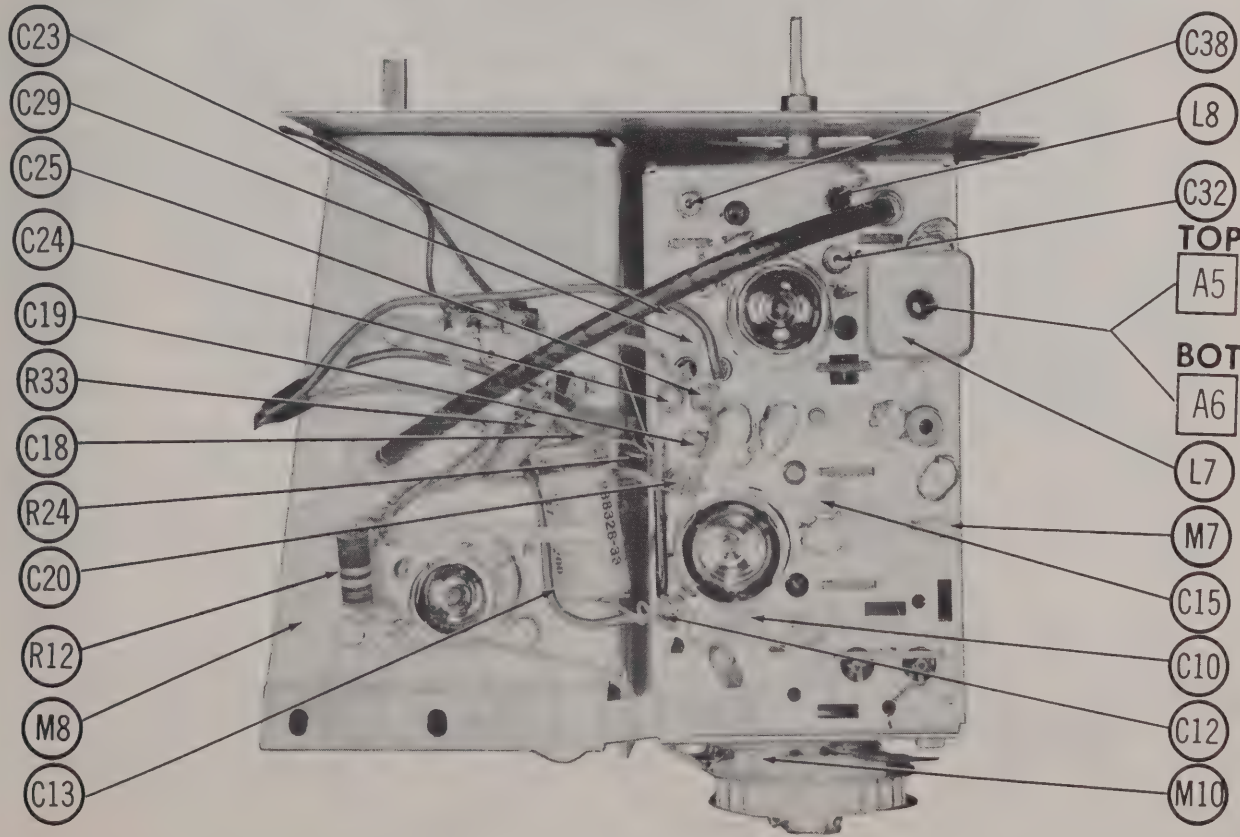
DENVER, COLORADO

UHF TUNER-RIGHT SIDE



RF TUNER-TOP VIEW

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 6 volt bias supply to point Ⓐ . Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	1500mmf Ceramic Capacitor	High side to point Ⓑ . Low side to chassis.	Not used	44.5MC (Unmod)	Any non-interfering channel	USE VTVM. DC probe to point Ⓒ. Common to chassis.	A1	Attenuate generator output to maintain not more than -3 volts on VTVM. Adjust for maximum deflection.
2.	"	"	"	45.5MC	"	"	A2	"
3.	"	"	"	43.0MC	"	"	A3	"
4.	"	"	"	47.25MC	"	"	A4, A5	Increase generator output and adjust A4 and A5 for MINIMUM deflection.
5.	"	"	44.0MC (10MC Swp)	42.5MC 45.75MC	"	Vert. Amp. thru detector (Fig.1) to pin 5 (plate) of 6DE6 (V4) 1st. video IF amp. Low side to chassis.	A6, A7, A8	Connect the negative lead of a 3 volt bias supply to point Ⓓ . Connect a 180Ω resistor from plate to screen (pin 5 to 6) of 6DE6 1st. video IF amp. (V4). Use only enough sweep generator output to provide a usable pattern on scope. Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown.
6.	"	"	"	42.5MC 45.0MC 45.75MC	"	Remove detector. Vert. Amp. thru 10K to point Ⓒ . Low side to chassis.	A1, A2, A3	Retouch A1 thru A3, if necessary for response similar to Fig. 3.
7.	"	High side thru pad (Fig. 4) to point Ⓑ . Low side to chassis.	Not used	45.75MC	"	USE VTVM. DC probe to point Ⓒ . Common to chassis.		Adjust generator output for exactly 1½ volt on VTVM.
8.	"	Remove pad. High side to point Ⓑ . Low side to chassis.	"	41.25MC	"	USE VTVM. DC probe to point Ⓓ . Common to chassis. Also connect scope as in step 6.	A3, A1	Retouch A3 and A1 for 1.2 to 1.5 volts on VTVM while maintaining response similar to Fig. 3.
9.	Two 130Ω Carbon Resistors	Across VHF antenna terminals with 130Ω in each lead.	44.0MC (10MC Swp)	42.5MC 45.0MC 45.75MC	All VHF channels	Vert. Amp. thru 10K to point Ⓒ . Low side to chassis.	A1, A2,	SLIGHTLY retouch A1 and A2 to correct for any overall tilt that is approximately the same on all channels.

SOUND IF ALIGNMENT

Connect two matched 100K (±1%) resistors in series from point Ⓔ to chassis. The junction of these two resistors is alignment point Ⓕ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	.01mfd	High side to point Ⓒ . Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point Ⓔ . Common to chassis.	A9, A10, A11	Adjust for maximum deflection.
11.	"	"	"	"	DC probe to point Ⓖ . Common to point Ⓕ .	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

4.5MC TRAP ALIGNMENT

Set the contrast control fully clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
12.	.01mfd	High side to point Ⓒ . Low side to chassis.	4.5MC (400∿ 30% AM)	Any non-interfering channel	Vert. Amp. thru diode probe to pin 2 (grid) of picture tube.	A12	Adjust for MINIMUM 400∿ indication on scope.

ALTERNATE 4.5MC TRAP ALIGNMENT USING ON THE AIR SIGNAL

Tune in a local TV station and adjust the fine tuning until beat pattern is seen in the picture. Adjust A12 until scanning lines are smooth and continuous.

TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

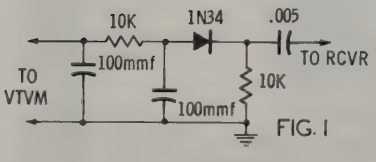


FIG. 1

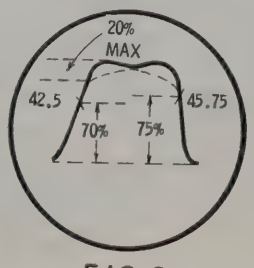


FIG. 2

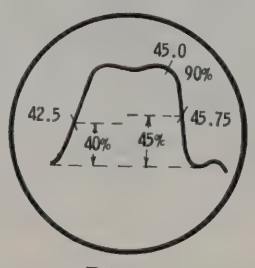


FIG. 3

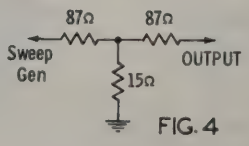
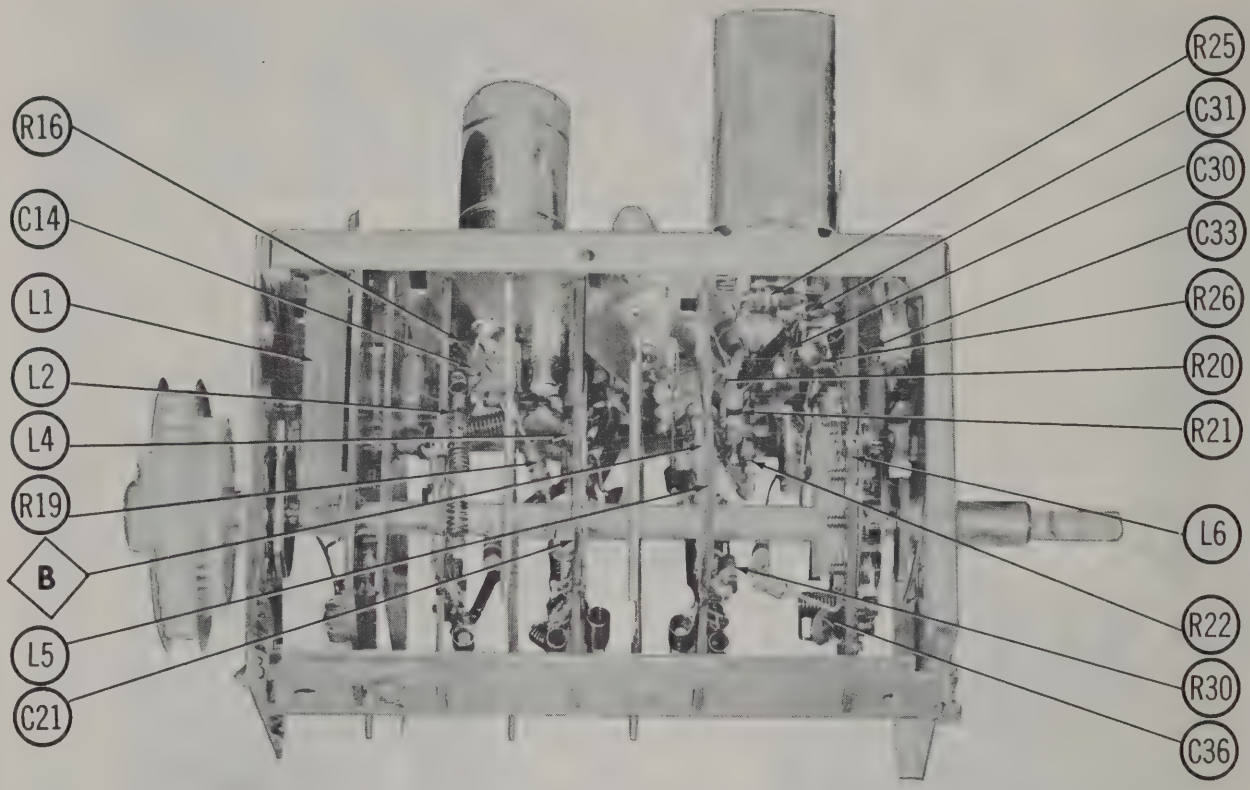
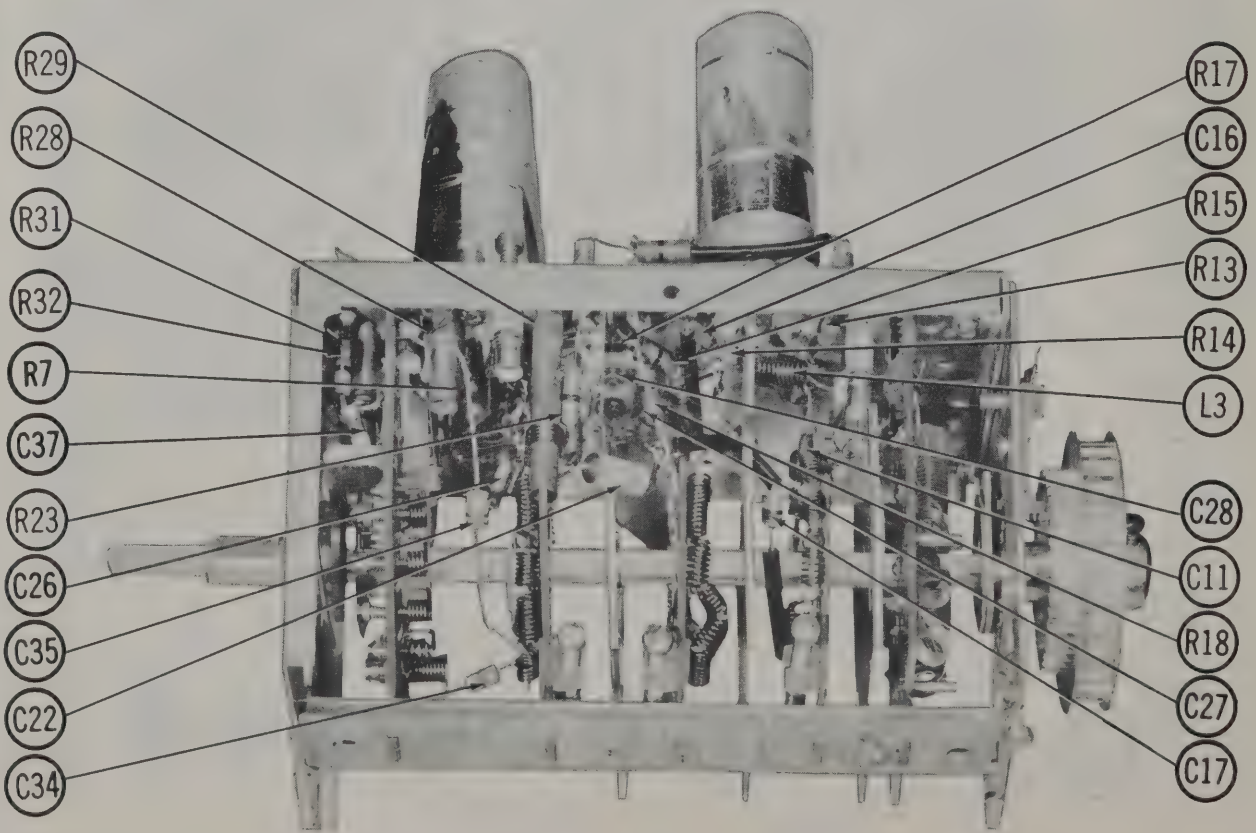


FIG. 4

CHASSIS BOTTOM VIEW



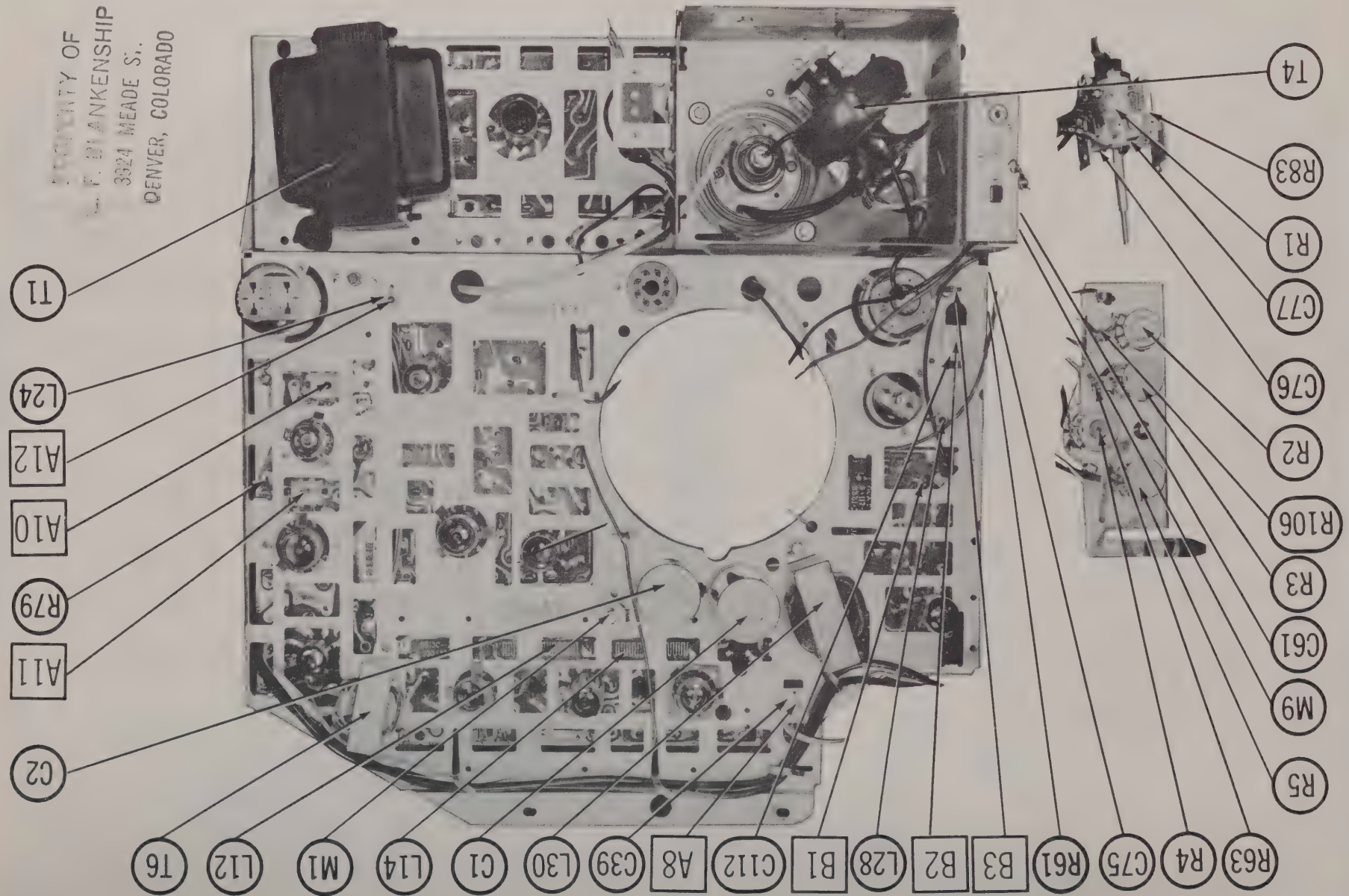
RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE

CHASSIS TOP VIEW

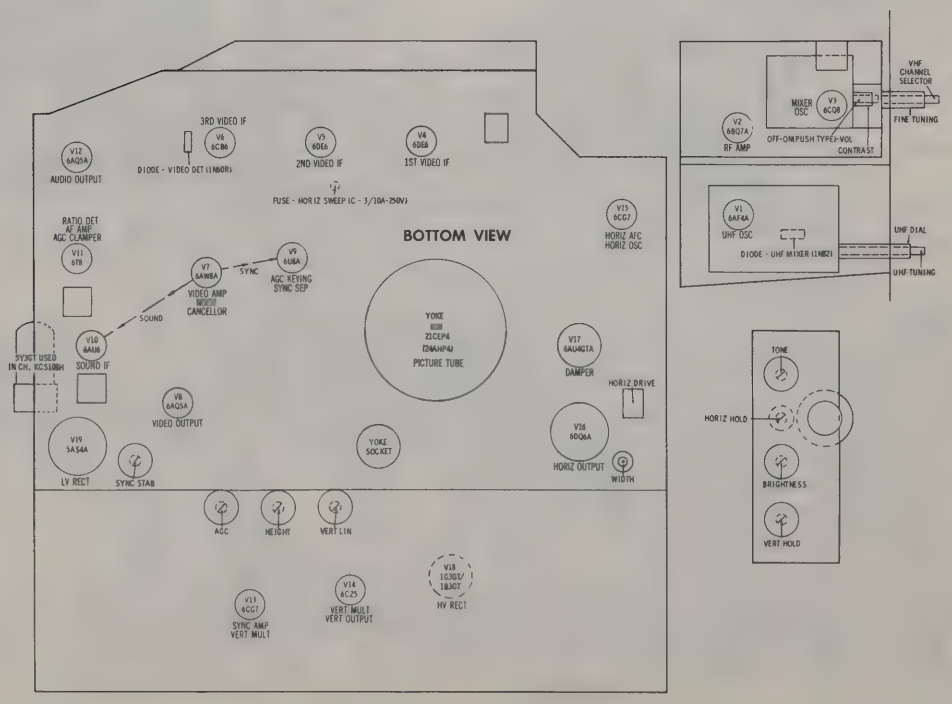
PROPERTY OF
L. F. BLANKENSHIP
3324 MEADE St.
DENVER, COLORADO



RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AF4A	*† 14K	*8200Ω	*0Ω	*.1Ω	*.1Ω	*8200Ω	*† 14K		
V2	6BQ7A	† 1800Ω	500K	INF	.1Ω	0Ω	INF	260K	47Ω	0Ω
V3	6CQ8	† 920Ω	100K	INF	0Ω	.1Ω	INF	100Ω	INF	† 100K
V4	6DE6	56K	56Ω	0Ω	.1Ω	▲ 680Ω	▲ 680Ω	0Ω		
V5	6DE6	▲ 15K	85K	.1Ω	0Ω	† 680Ω	† 680Ω	85K		
V6	6CB6	.2Ω	180Ω	.1Ω	0Ω	† 4700Ω	† 4700Ω	0Ω		
V7	6AW8A	2200Ω	• 750K	† 33K	.1Ω	0Ω	180Ω	4000Ω	† 5000Ω	† 12K
V8	6AS5A	470K	• 800Ω	0Ω	.1Ω	† 3800Ω	† 270Ω	470K		
V9	6U8A	† 1meg	35K	† 270Ω	0Ω	.1Ω	200K	† 4500Ω	0Ω	2.2meg
V10	6AU6	47K	0Ω	0Ω	.1Ω	† 6000Ω	† 6000Ω	82Ω		
V11	6T8	INF	33K	INF	.1Ω	0Ω	2500Ω	0Ω	10meg	† 330K
V12	6AQ5A	470K	560Ω	.1Ω	0Ω	† 3600Ω	† 3300Ω	470K		
V13	6CG7	† 17K	33K	0Ω	0Ω	.1Ω	‡ 2.5meg	• 1.8meg	0Ω	0Ω
V14	6CZ5	† 150Ω	NC	• 1.2meg	0Ω	.1Ω	• 1.2meg	0Ω	NC	† 400Ω
V15	6CG7	† 0Ω	1.2meg	180K	0Ω	.1Ω	† 47K	200K	0Ω	0Ω
V16	6DQ6A	NC	0Ω	NC	† 5600Ω	1meg	NC	.1Ω	100Ω	TOP CAP ‡ 15.5Ω
V17	6AU4GTA	NC	NC	4meg	NC	† .5Ω	NC	.1Ω	0Ω	
V18	1G3GT/ 1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡ 110Ω
V19	5AS4A	NC	¶	NC	28Ω	NC	26Ω	NC	¶	
V20	21CEP4	.2Ω	470K	1.1meg	† 100K	NC	NC	• 180K	.1Ω	

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
* MEASURED IN "UHF" POSITION.
† MEASURED FROM 280V SOURCE.
‡ MEASURED FROM PIN 3 OF V17.
▲ MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.



TUBE PLACEMENT CHART

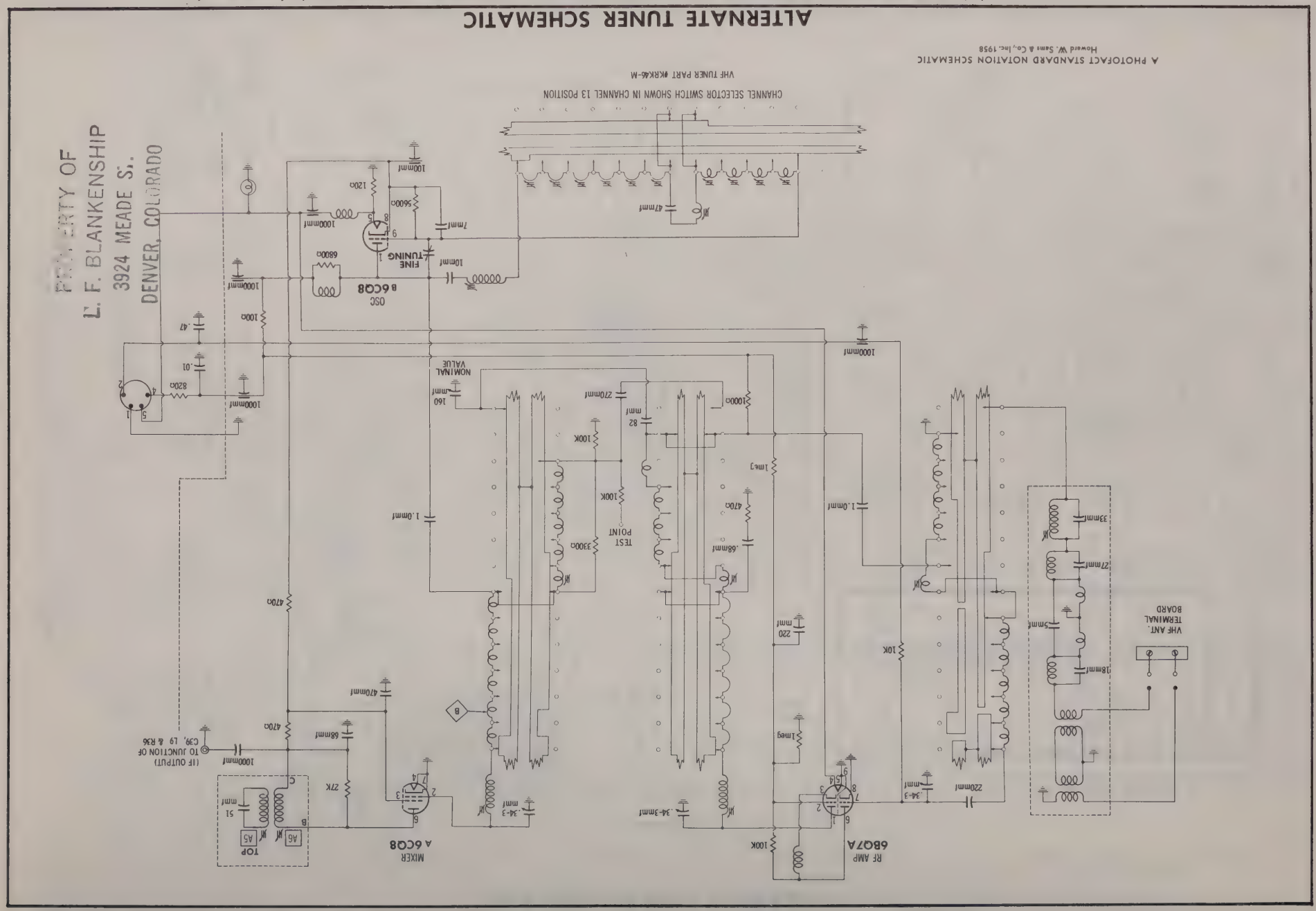
ALTERNATE TUNER SCHEMATIC

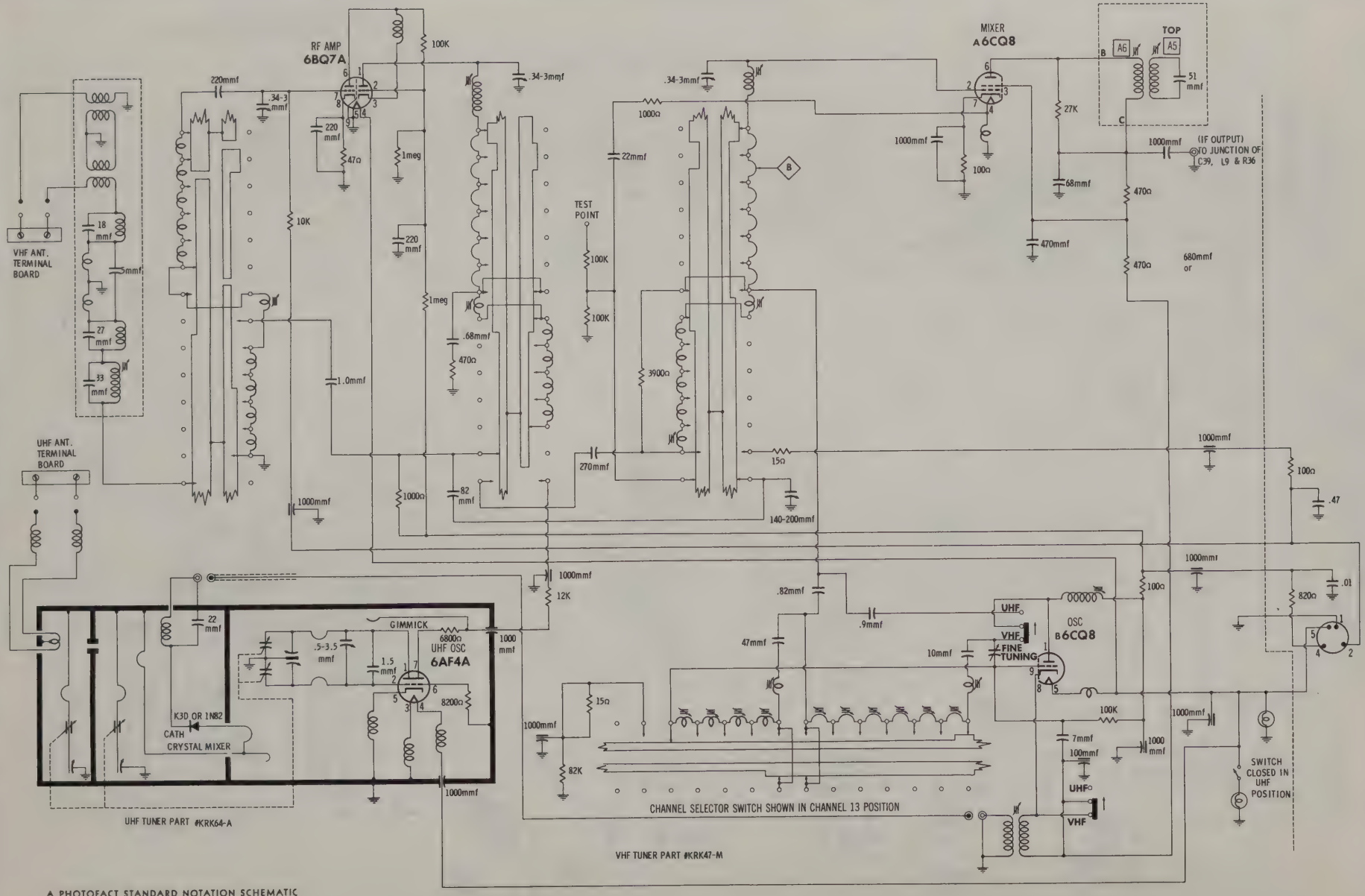
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

VHF TUNER PART #KRK46-M

CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO





A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

ALTERNATE TUNER SCHEMATIC

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	UHF Osc.	6AF4A	
V2	RF Amplifier	6BQ7A	
V3	Mixer-Osc.	6CQ8	
V4	1st. Video IF Amp.	6DE6	
V5	2nd. Video IF Amp.	6DE6	
V6	3rd. Video IF Amp.	6CB6	
V7	Video Amp. - Noise Cancellor	6AW8A	
V8	Video Output	6AQ5A	
V9	AGC Keying-Sync Sep.	6U8A	
V10	Sound IF Amp.	6AU6	
V11	Ratio Det. -AF Amp. - AGC Clamper	6T8	
V12	Audio Output	6AQ5A	
V13	Sync Amp. -Vert. Mult.	6CG7	
V14	Vert. Mult. -Vert. Output	6CZ5	
V15	Horiz. AFC-Horiz. Osc.	6CG7	
V16	Horiz. Output	6DQ6A	
V17	Damper	6AU4GTA	
V18	HV Rectifier	1G3GT/1B3GT	
V19	LV Rectifier	5AS4A	

PROPERTY OF
L. F. BLANKENSHIP
3824 MEADE ST.
DENVER, COLORADO

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	RCA Victor PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V20	21CEP4 24AHP4		21CEP4 ① 24AHP4 ①	21CEP4 ②	① Silverama ② Silver screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲100	400	100858	AFHS4-57-90	D0875	FP420.7		Q-242	TVL-4663.5
B	▲30	50							
C	■10	400							
D	20	50							
C2A	▲100	400	104301	AFH4-06-40	C0365	FP389.1		Q-025	R2552 *
B	■30	400			BR3045	TC75		MT-4530	
C	▲20	400							
C3	5	50	78943	PRS50V5	BBR5-50	TC30	TD-5-50	MT-1504	TVA-1303
C4	8	10VNP	102847	AC-PRS10V8	BBR16-90 †	TC108	TD-16-150 †	MT-1516 †	R2201 *
					BBR16-90		TD-16-150	MT-1516	

* Non-catalog item.
† Connect negative leads together.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	22		104915		TCZ-22		TCO-22		MS-422	NPO 5%
C6	.5-3.5						532-A			
C7	1.5		102978							N750
C8	1000		103997	EF-001	MFT-1000				503C-D1	
C9	1000		103997	EF-001	MFT-1000				503C-D1	
C10	.3-3		103553							
C11	220		100672	BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C12	1000		103517	EF-001	MFT-1000				503C-D1	
C13	.47	200	79148A					GEM-2047		10%
C14	220		100672		D6-221	L10T22	ED-220		MS-322	10%
C15	.3-2		103554							
C16	220		100672		D6-221	L10T22	ED-220		MS-322	10%
C17	1.0		77690	NPO-SI 1.0	TCZ-1		TCO-1		5TCCB-V1	10%
C18	10000		73960							10%
C19	1000		103517	EF-001	MFT-1000				503C-D1	
C20	1000		103517	EF-001	MFT-1000				503C-D1	
C21	.68		71504		TCZ-R68		TCO-.68			
C22	270		77838	SI 270	D6-271		GP-270	UC-5327	5GA-T27	
C23	1000		103517	EF-001	MFT-1000				503C-D1	
C24	1000		103517	EF-001	MFT-1000				503C-D1	
C25	1000		103517	EF-001	MFT-1000				503C-D1	
C26	22		103534	NPO-DI 22	DD-220	L10Q22	TCO-22		MS-422	10%
C27	82		103560	1469-000082	TCZ-82	22R5Q82	TCO-82		MS-482	5%
C28	140-200		103519							
C29	.3-3		103552							
C30	1000		77252	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C31	470		78622		D6-471	5R5T47	ED-470		MS-347	10%
C32	100		103518	EF-0001	MFT-100				503C-T1	
C33	7		103523			C10V7C				10%
C34	.82		77689							10%
C35	1.2			NPO-SI 1.0	TCZ-1		TCO-1			
C36	47		103559	NPO-DI 47	DD-470	L10Q47	ED-47		MS-447	10%
C37	10		103556							N330 ±5mmf
C38	1000		103517	EF-001	MFT-1000				503C-D1	
C39	10-160		100849							
C40	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	①
C41	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C42	18				TCZ-18	CTA6Q18C	TCO-18			NPO②
C43	470		78622	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C44	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C45	1000		77252	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-S1	
C46	1000		78623	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-S1	
C47	1000		77252	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-S1	
C48	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C49	1000		78623	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C50	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C51	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C52	9		102647			C10V9C				NPO
C53	8		101439			C10V8C				NPO
C54	10000		73960	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C55	.22	200	104310	P288N-22		P288N-22		GEM-2022	2TM-P22	
C56	1000		102416	1464-001		1R5D1	ED-1000	MCB255	MS-21	10%
C57	39		102694	N750-SI 39	TCN-39	C10Q39U	TC7-39			N750 10%
C58	.1	600	104311	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C59	9		102516							N330
C60	.1	600	104311	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP	RATING VOLT	REPLACEMENT DATA: RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C81	.064	1000	73485	P1068N-068		CUBI068		GEM-31068	10TM-S68	
C83	.0039	400	102218-A							10%
C84	10000		73960	BPD-01	DD-103	BYA681	ED-01	DC811	68K-51	
C85	.47	285	78540-A	P285N-47		CUBP347		GEM-3047	47TM-P47	10%
C86	470	3000	104383							
C87	.1	1000	102443							10%
C88	10000		73960	BPD-01	DD-103	BYA681	ED-01	DC811	68K-51	NTS0
C89	56		102207	NTS0-51 56	TCH-56	CUCQ56U	TCT-56			NTS0-10%
C89	2700		104181			IRSD57	CY30C272K		MB-327	10%
C90	470		78623	BPD-00047	DD-471	BYA70747	ED-470	UC-5347	50A-T47	
C91	10000		73960	BPD-01	DD-103	BYA681	ED-01	DC811	68K-51	
C92	470		78623	BPD-00047	DD-471	BYA70747	ED-470	UC-5347	50A-T47	
C93	.01	200	78196					GEM-1611		10%
C94	.0082	300	102617-A					GEM-16323		10%
C95	.01	300	105000-A					GEM-1611		10%
C96	470		104380	BPD-00047	DD-471	BYA70747	ED-470	UC-5347	50A-T47	
C97	.0047	400	73950					GEM-16347		10%
C98	.0015	400	102217-A							10%
C99	470		73960	BPD-00047	DD-471	BYA70747	ED-470	UC-5347	50A-T47	
C99	.0033	1000	73962							10%
C100	.1	600	104431	P068N-1	DF-104	CUB43P1		GEM-601	6TM-P1	
C101	330	300	103866	1464-00033	DM-331	SRF733	ED-330	DM-333	MB-333	10%
C102	330		103866	1464-00033	DM-331	SRF733	ED-330		MB-333	10%
C103	.033	400	104643	P068N-033	DF-303	CUB633		GEM-633	6TM-S33	10%
C104	.01	400	102330-A					GEM-1641		10%
C105	.0047	600	102328-A					GEM-16347		10%
C106	.0039		73796							10%
C107	.039	400	73790							10%
C108	.015	400	73792							10%
C109	.15	300	104146							10%
C110	.033	600	104645	P068N-033	DD-303	CUB633	ED-03	GEM-633	6TM-S33	10%
C111	.027	600	78346							10%
C112	.01	300	78195					GEM-1611		10%
C113	.0068	400	77787							10%
C114	.001	1600	73949	P1068N-001		CUB1G8		GEM-3G1	MB-DN	
C115	.047	400	78553	P068N-047	DF-503	CUB647		GEM-647	6TM-S47	
C116	.0047	400	78937	P068N-0047	DS-473	CUB647	GP-4700	GEM-6347	6TM-D47	
C117	.1	600	73681	P068N-1	DF-104	CUB43P1		GEM-601	6TM-P1	
C118	330		104446	1464-00033	DM-331	SRF733	ED-330		MB-333	10%
C119	82	1000	78474							5%
C120	82	1000	78475							5%
C121	.1	600	73681	P068N-1	DF-104	CUB43P1		GEM-601	6TM-P1	
C122	.033	600	104351-A	P068N-033	DD-303	CUB633	ED-02	GEM-633	6TM-S33	
C123	.47	285	78346-A	P285N-47		CUBP347		GEM-3047	47TM-P47	
C124	470	1000	104147							5%
C125	.01	600	78594							5%
C126	1000			BPD-001	DD-103	BYA681	ED-1000	DC811	68K-DI	10%
C127	680	1000	78796							5%
C128	10-180		100849							
C129	.0015	600	78495							5%
C130	.1	600	73957	P068N-1	DF-104	CUB43P1		GEM-601	6TM-P1	10%
C131	.27	300	73786							
C132	.1000	1600	78579			5P1S735				10%
C137	.1	600	73957							
C138	.1	400		P068N-1	DF-104	CUB43P1		GEM-601	6TM-P1	
C139	.1	400		P068N-1	DF-104	CUB43P1		GEM-601	6TM-P1	
C120	.015	600	73552							10%
C121	470	3000	104383							10%
C123	330	3500	104385							10%
C123	18	3500	103535							10%
C134	130	3500	103536							10%
C135	130	3500	103536							10%

1) Not used in models with 24" picture tube.
2) Models with a 24" picture tube use 10mmf 5% (Part #102896) in this application.
3) Not used in some versions.
4) Not used in some versions. Models with 24" picture tube and Ch KCH108H use 680mmf (Part #108618) in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1500Ω	½	104102			U1823	Not Reg.	Contrast - Note 1
B	1meg	½				Not Reg.	Not Reg.	Volume - Top ② 300K-Note 1
C	Switch	½				Not Reg.	U156	Vert. Hold
R2A	1.5meg	½	104098	B-742	A47-1.5meg-S	QI-238		
B	Shaft			Not Reg.	FS-3	Not Reg.	Not Reg.	
R3A	300K	½	104088	B-49	A47-300K-S	QI-139	U43	Brightness
B	Shaft			Not Reg.	FS-3	Not Reg.	Not Reg.	
R4A	5meg	½	104090	AB-47	A47-5meg-S	QI-541	PT-A5E1	Horiz. Hold
B	Shaft			AK-19	RH-3	TQ	Not Reg.	
R5A	2.5meg	½	104103	S-83	A47-2.5meg-S	QI-239	U156	Tune
B	Shaft			Not Reg.	FS-3	Not Reg.	Not Reg.	
R6A	1.5meg	½	103406	BX-743	TA3B1	QI-238	U43	Vert. Lin.
B	Shaft			Not Reg.		TM3-K1	Not Reg.	
R7A	5meg	½	100290			BU-141	PT3A5E1	Height
B	Shaft					TM3-K1	Not Reg.	
R8A	500K	½	100863			BU-133	PT3A5E	AGC
B	Shaft					TM3-K1	Not Reg.	
R9A	2meg	½	100863	BX-75	A47-2meg-S	QI-139	TA3B1	Sync Stab
B	Shaft			Not Reg.	FS2-1/4	TQ	Not Reg.	

Note 1: Chassis KCH108H uses part #108556 in this application.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	NOTES
R10	82000Ω		502282	
R11	68000Ω	1	512268	
R12	12K	2	512312	
R13	10K		502310	
R14	100K		502410	
R15	1meg		502510	
R16	47Ω		502047	
R17	1meg		502510	

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	NOTES
R19	1000Ω		502210	
R19	470Ω		502147	
R20	100K		502410	
R21	100K		502410	
R23	10000Ω		502210	
R23	150		502015	
R24	100Ω		502110	
R25	27K 5%		503227	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	NOTES
R26	10000Ω		503210	
R27	100Ω		503110	
R28	100K		503410	
R29	100Ω		503110	
R30	33000Ω		503233	Note 1
R31	82K		503283	
R32	18Ω		503093	
R33	6200	1	512262	
R34	150K 5%		503423	
R35	1.5meg 5%		503518	
R36	10000Ω		502210	Note 2
R37	47K 5%		503247	Note 3
R38	47Ω		502047	
R39	47K 5%		503247	
R40	100K		502410	
R41	150K 5%		503415	
R42	56Ω 5%		503056	
R43	150K 5%		503415	
R44	6800		502268	
R45	6800		502268	
R46	15K		502315	
R47	4700		502147	
R48	4200Ω	7	100648	
R49	180Ω 5%		503118	
R50	220K		503422	
R51	10K	2	512310	
R52	22000Ω		502233	
R53	10000Ω 5%	1	512310	
R54	3300Ω		502133	
R55	180Ω		502118	
R56	470K		503447	
R57	18000Ω	2	512318	
R58	2200Ω	3	512218	
R59	560Ω	3	512256	
R60	470K		503447	
R61	820K		502482	
R62	150K		502415	
R63	220K		502422	
R64	220K		502422	
R65	47K		502347	
R66	82K		502282	
R67	470K	2	512347	
R68	120K 5%		502423	
R69	33K		502333	
R70	56K 5%		503356	
R71	2700	1	512127	
R72	56K		502356	
R73	39K		502339	
R74	270K		502427	
R75	47K		502347	
R76	15K		502315	
R77	10000		502210	
R78	62Ω		502062	
R79	47Ω		502047	
R80	39K		502339	
R81	33K 5%		502333	
R82	10meg		502510	
R83	33K		502333	Note 6
R84	330K		503433	

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	NOTES
R85	330Ω		502133	
R86	470K		503447	
R87	33000	7	102417	Note 4
R88	5600	1	512256	
R89	27K		503227	
R90	33K		502333	
R91	18K		502318	
R92	22000 5%		503223	
R93	18000 5%		502218	
R94	1meg		502510	
R95	1.2meg		503512	
R96	270K		502427	
R97	1meg	1	502510	
R98	47K		512303	
R99	33K		502333	
R100	560K		502565	
R101	10K	1	512310	
R102	39000 5%		502239	Note 5
R103	22K		502322	
R104	2.2meg		502512	
R105	6.8meg		502568	
R106	820K		502482	
R107	470K		503447	
R108	22K		502322	
R109	18K 5%		502318	
R110	39000		502339	
R111	82000		502283	
R112	18K		502318	
R113	470K		502447	
R114	22K 5%	1	512322	
R115	33000		502333	
R116	22K	1	512322	
R117	150K		502415	
R118	680		503468	
R119	150Ω		502115	
R120	150Ω			
R121	33Ω			
R122	330		503433	
R123	820K		503482	
R124	220K		503422	
R125	82K 5%		502382	
R126	100K 5%		502410	
R127	39000		502239	
R128	120K 5%	1	512423	
R129	10Ω		503510	
R130	68K		503268	
R131	47K	1	512347	
R132	47Ω		502047	
R133	10Ω		502510	
R134	560K		502456	
R135	56000Ω	3	104180	
R136	100Ω	7	104498	
R137	68K		503268	
R138	120K		512423	
R139	1Ω		104382	
R140	10000Ω		502210	
R141	47000		502347	
R142	100K		502410	Note 6
R143	1.5Ω		77787	

Note 1. Some versions may use a 39000Ω (Part #502339) in this application.
Note 2. Models with 24" picture tube use a 150Ω (Part #503115) in this application.
Note 3. Models with 24" picture tube use a 27K (Part #502327) in this application.
Note 4. Chassis KCH108H use a 20000Ω 7W (Part #105869) in this application.
Note 5. Chassis KCH108H and Models with 24" picture tube use a 47000Ω (Part #502347) in this application.
Note 6. Chassis KCH108H and Models with 24" picture tube use a 820K (Part #502482) in this application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.
T1	117V	580VCT @ 300A	@ 3A	@ 9.5A	104302 ①					

① Chassis KCH108H use part #105875 in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	NOTES
T2	Vert Output	104101						A-31S	
T3A	Yoke-Horiz. (19MB)	104408 ①				DY-26A		Y-66-3	
B	(DP7)-Vert. (19MB) Yoke Clamp	104409							
M1	Rear Cover & Centering Device	104077							
T4	Yoke Plug	51309							
T5	Horiz. Output	104398		MWC-9	20HS18	WC-8	WC-23	WLC-8	
T6	Width Coil (5.5-11MH)	104086							

① Includes resistors R119, R120, R121 and capacitors C132, C134 and C135.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI	IMPEDANCE SEC.	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	NOTES
T6	7600Ω	3-4Ω	100037	Z1003	A-3030	A-3949	28S48	S-9Z	

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V C IMP	RCA Victor PART No.	QUAM PART No.	NOTES
SP1	5" x 9"	PM	3-4Ω	101182 ①	69A3	① Used in Models 21-D-8665, U, 66, U, 67, U
SP2	3½"	PM	8Ω	102119 ① ②	3A15T2S	② Used in Models 21-D-8635, U, 28, U, 27, U, 28, U,
SP3	3½"	PM	8Ω	102119 ① ③	3A15T2S	45, U, 46, U, 47, U, 48, U, 21-D-8605, U, 07, U, 08,
	8"	PM	3-4Ω	74594 ②	8A2L	U, 24-D-8615, U, 87, U, 75, U, 76, U, 21-RD-8526

COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	NOTES
L1	VHF Ant. Match. Trans. Assy.	108635	Includes traps
L3	VHF Ant. Coils	103564	Channel 2-13, Includes C31, C37 & stator assy.
L3	Ant. Coil	78983	Channel 2-13,
L4	RF Coils	103560	Includes C37, C38, R18, R19 & stator assy

ITEM No.	USE	RCA Victor PART No.	NOTES
L6	Mixer Grid Coils	103561	Channel 2-13, includes C33 & stator assy
L6	Osc. Coils	103549	Channel 2-13, Includes C34, C37, C36 & stator assy
L7	Mixer Plate Coil	103549	Includes trap
L9	UHF IF Input Trans	103666	

ITEM No.	USE	REPLACEMENT DATA: RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordorson PART No.	NOTES
L9	RF Choke	102894						
L10	47 22MC Trap	103850						
L11	1st. Video IF	102549						
L23	Fil. Choke							
L23	2nd Video IF	101598						
L24	Fil Choke							
L25	3rd Video IF	101585						
L26	4th Video IF	101586						
L27	Series Peaking Coil	102839		19-1006	TV-192	6152		18 Microhenries
L28	Series Peaking Coil	102839		19-1006	TV-192	6152		18 Microhenries
L29	Series Peaking Coil	101387		19-3350	TV-188	6181	VP-6	250 Microhenries
L30	Series Peaking Coil	103696		19-3136 *	TV-196 *	6180 *	VP-5 *	180 Microhenries, wound on 27K resistor
L31	Shunt Peaking Coil	101389		19-3300 ▲	TV-199 ▲	6185 ▲		100 Microhenries, wound on 6800Ω resistor
L32	Series Peaking Coil	102898		19-3125 *	TV-195 *	6153*	VP-4 *	130 Microhenries, wound on 6800Ω resistor
L33	Shunt Peaking Coil	102698		19-3125 *	TV-195 *	6153*	VP-4 *	130 Microhenries, wound on 6800Ω resistor
L34	4.5MC Trap	102518		20-1005-6				
L35	Shunt Peaking	102845						Includes cap.
L36	Ratio Det.	103844						Includes cap.
L37	RF Choke	78540		19-1001	BC-562	4604		1.5 Microhenries, IRC part #CL-1

* Parallel with 27K resistor
▲ Parallel with 6800Ω resistor.
† Parallel with 5000Ω resistor
‡ Remove 10mmf cap.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI	DC RES. SEC.	REPLACEMENT DATA: RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordorson PART No.	NOTES
L38	7Ω *		104087					28S-7	Horiz. Freq. 64 Millihenries * Tapped @ 50Ω Horiz. Waveform
L39	36Ω		102300						

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS RESISTANCE	RATINGS INDUCTANCE @ CURRENT 1000 Cps	REPLACEMENT DATA: RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.
L30	.300A	60Ω	1.2 Hy.	77878	C3037 ①	C-3996 ①	C-3236 ①	36C64	C-32X

① Drill new mounting hole

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: RCA Victor PART No. FUSE	RCA Victor PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	C	3/10A 250V	102264	102263	313.300 (C 3/10A-250V)	346001	C 3/10	HC 0 to 3/10

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: RCA Victor PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M2	1N32 *	104001	1N32A	1N48A	UHF Mixer (Clip-in)
M3	1N60	78605	1N60	1N60	Video Detector (Pigtail)

* Some versions may use a 1N3D in this application.

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M4	Pilot Lamp		VHF Indicator (#1847)
M5	Pilot Lamp		UHF Indicator (#1847)
M6	Pilot Lamp		Control Panel (#47)
M7	Tuner	KRK47E	VHF - Part of tuner assemblies KRK52N, KRK53R used in Ch. KCH108F, KCH108D
	Tuner	KRK66S	VHF - Part of tuner assemblies KRK66M, KRK52P, KRK54AD used in Ch. KCH108C, KCH108E, KCH108H
	Tuner	KRK66M	VHF - Part of tuner assembly KRK54AB - used in Ch. KCH108E with 24" picture tube
	Tuner	KRK47M	VHF - Part of tuner assembly KRK54AC - used in Ch. KCH108F with 24" picture tube
M8	Tuner	KRK94A	UHF - Part of tuner assemblies KRK52N, KRK52R, KRK54AC - used in Ch. KCH108D, KCH108F
M9	Switch	103686	TV-Phono Glide type (TPDT)
M10	Switch	104020	UBF Pilot Lamp
M11	Centering Device	104077	Includes yoke cover
	Printed Circuit	104314	Sound Circuit Assembly - less tubes
	Printed Circuit	102892	Video IF Circuit Assembly - less tubes
	Printed Circuit	102586	Video Circuit Assembly - less tubes
	Printed Circuit	104315	Vert. Circuit Assembly - less tubes
	Printed Circuit	104312	Horiz. Osc. Circuit Assy. - less tubes

RCA VICTOR MODELS 21-D-8525, U, 21-D-8526, U, 21-D-8527, U, 21-D-8528, U, 21-D-8545, U, 21-D-8546, U, 21-D-8547, U, 21-D-8565, U, 21-D-8566, U, 21-D-8567, U, 21-D-8587, U, 21-D-8605, U, 21-D-8607, U, 21-D-8608, U, 24-D-8635, U, 24-D-8637, U, 24-D-8676, U, 24-D-8678, U (CH. KCS-108, C, D, E, F)

FOLDER 2

PARTS LIST AND DESCRIPTIONS (Continued)

CABINETS & CABINET PARTS

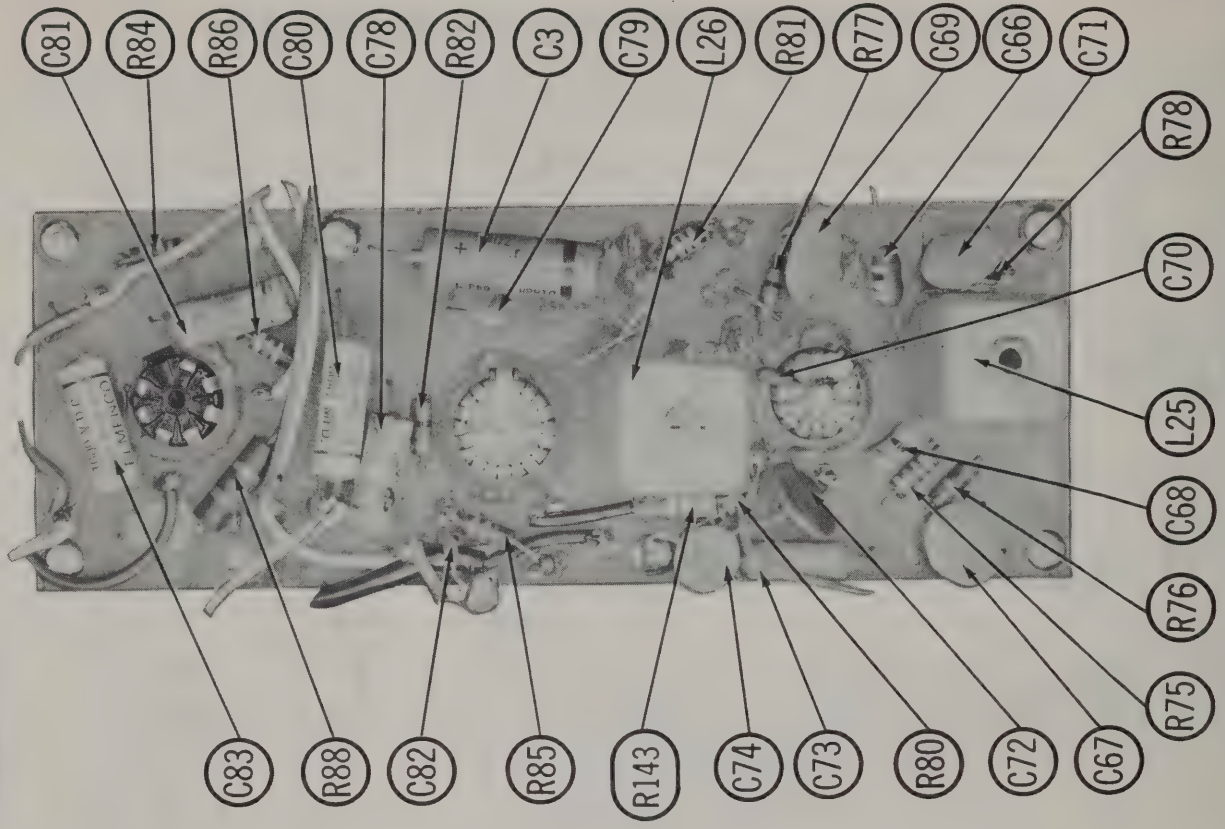
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	104252	Models 21-D-8525, U, 26, U, 27, U, 28, U, 45, U, 46, U, 47, U, 65, U, 66, U, 67, U
Safety Glass	102742	Models 21-D-8588, U, 21-D-8605, U, 07, U, 08, U
Safety Glass	105495	Models 24-D-8655, U, 57, U, 76, U, 78, U
Mask	104247	Models 21-D-8525, U, 26, U, 27, U, 28, U, 45, U, 46, U, 47, U, 65, U, 66, U, 67, U
Mask	104407	Models 21-D-8588, U, 21-D-8605, U, 07, U, 08, U
Bezel	104549	
Escutcheon	104418	Channel Indicator Dial
Knob	104403	VHF Channel Selector - Models 21-D-8526, U, 27, U, 46, U, 47, U, 66, U, 67, U, 21-D-8607, U, 24-D-8657, U, 76, U
Knob	104402	VHF Channel Selector - Models 21-D-8525, U, 45, U, 65, U, 21-D-8605, U, 24-D-8655, U
Knob	104404	VHF Channel Selector - Models 21-D-8528, U, 88, U, 21-D-8608, U, 24-D-8678, U
Knob	104398	UHF/VHF Fine Tuning - Models 21-D-8526, U, 27, U, 46, U, 47, U, 66, U, 67, U, 21-D-8607, U, 24-D-8657, U, 76, U
Knob	104397	UHF/VHF Fine tuning- Models 21-D-8525, U, 45, U, 65, U, 21-D-8605, U, 24-D-8655U
Knob	104399	UHF/VHF Fine Tuning - Models 21-D-8528, U, 88, U, 21-D-8608, U, 24-D-8678, U
Knob	104072	UHF Tuning - Models 21-D-8526U, 27U, 46U, 47U, 66U, 67U, 21-D-8607U, 24-D-8657U, 76U
Knob	104071	UHF Tuning - Models 21-D-8525U, 45U, 65U, 21-D-8605U, 24-D-8655U
Knob	104405	UHF Tuning - Models 21-D-8528U, 88U, 21-D-8608U, 24-D-8678U
Knob	100621-B	On-off-volume - Models 21-D-8526, U, 27, U, 46, U, 47, U, 66, U, 67, U, 21-D-8607, U, 24-D-8657, U, 76, U
Knob	101138-B	On-off-volume - Models 21-D-8525, U, 45, U, 65, U, 21-D-8605, U, 24-D-8655, U
Knob	101140-B	On-off-volume - Models 21-D-8528, U, 88, U, 21-D-8608, U, 24-D-8678, U
Knob	104395	Contrast - Models 21-D-8526, U, 27, U, 45, U, 47, U, 66, U, 67, U, 21-D-8607, U, 24-D-8657, U, 76, U
Knob	104386	Contrast - Models 21-D-8525, U, 45, U, 65, U, 21-D-8605, U, 24-D-8655, U
Knob	104396	Contrast - Models 21-D-8528, U, 88, U, 21-D-8608, U, 24-D-8678, U
Knob	102581	Brightness, Vert. Hold, Horiz. Hold, Tone
Dial	104521	UHF - Models 21-D-8526U, 27U, 28U, 46U, 47U, 66U, 67U, 88U, 21-D-8607U, 08U, 24-D-8657U, 76U, 78U
Dial	104074	UHF - Models 21-D-8525U, 45U, 65U, 21-D-8605U
Dial	104520	UHF - Models 21-D-8525U, 45U, 65U, 21-D-8605U, 24-D-8655U
Dial	104417	UHF Channel Indicator - Models 21-D-8545U, 46U, 47U, 65U, 66U, 67U, 24-D-8676U, 78U
Dial	104585	UHF Channel Indicator - Models 21-D-8525U, 26U, 27U, 28U, 88U, 8605U, 07U, 08U, 24-D-8655U, 57U
Dial	104584	VHF Channel Indicator - Models 21-D-8525, 26, 27, 28, 88, 21-D-8605, 07, 08, 24-D-8655, 57
Dial	104416	VHF Channel Indicator - Models 21-D-8545, 46, 47, 65, 66, 67, 24-D-8676, 78
Belt	104412	Tuning Dial - Models 21-D-8565, U, 66, U, 67, U
Belt	105349	Tuning Dial - Models 21-D-8525, U, 26, U, 27, U, 28, U
Belt	104410	Tuning Dial - Models 21-D-8588, U, 21-D-8605, U, 07, U, 08, U
Cabinet	M4159	Models 21-D-8566, U
Cabinet	M4155	Models 21-D-8525, U
Cabinet	M4156	Models 21-D-8526, U
Cabinet	M4157	Models 21-D-8527, U
Cabinet	M4194	Models 21-D-8528, U
Cabinet	M4165	Models 21-D-8545, U
Cabinet	M4166	Models 21-D-8546, U
Cabinet	M4167	Models 21-D-8547, U
Cabinet	M4158	Models 21-D-8565, U
Cabinet	M4160	Models 21-D-8567, U
Cabinet	X4161	Models 21-D-8588, U
Cabinet	X4162	Models 21-D-8605, U
Cabinet	X4163	Models 21-D-8607, U
Cabinet	X4164	Models 21-D-8608, U
Cabinet	M4278	Models 24-D-8655, U
Cabinet	M4279	Models 24-D-8657, U
Cabinet	X4280	Models 24-D-8676, U
Cabinet	X4281	Models 24-D-8678, U

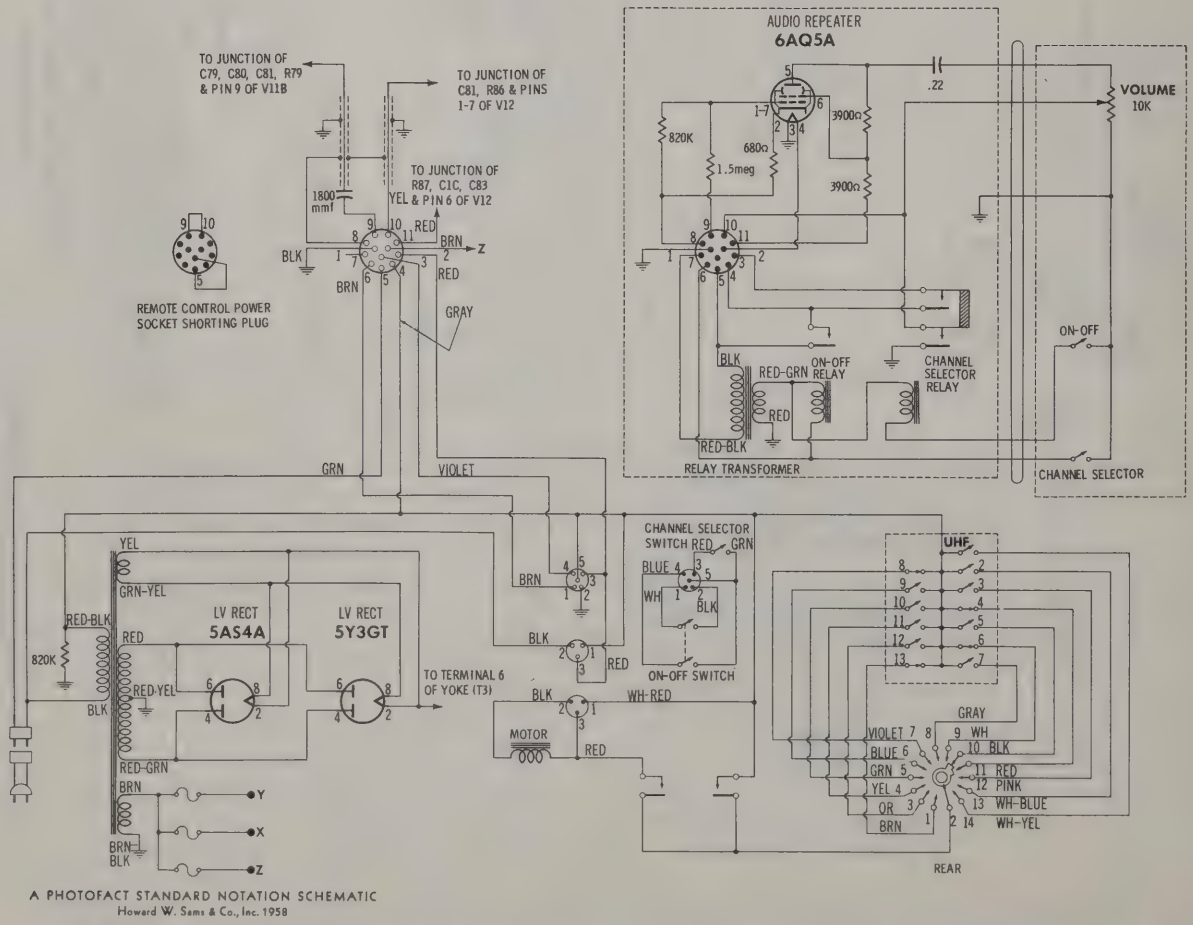
WIRING DATA

High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

ALTERNATE TUNER SCHEMATIC
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
VHF TUNER PART #KRK-6-E
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958
RF AMP 6BQ7A
MIXER A 6CQ8
OSC B 6CQ8
FINE TUNING
TEST POINT
VHF ANT. TERMINAL BOARD
TOP
(1F OUTPUT) TO JUNCTION OF C39, C40 & R36



SOUND PRINTED BOARD



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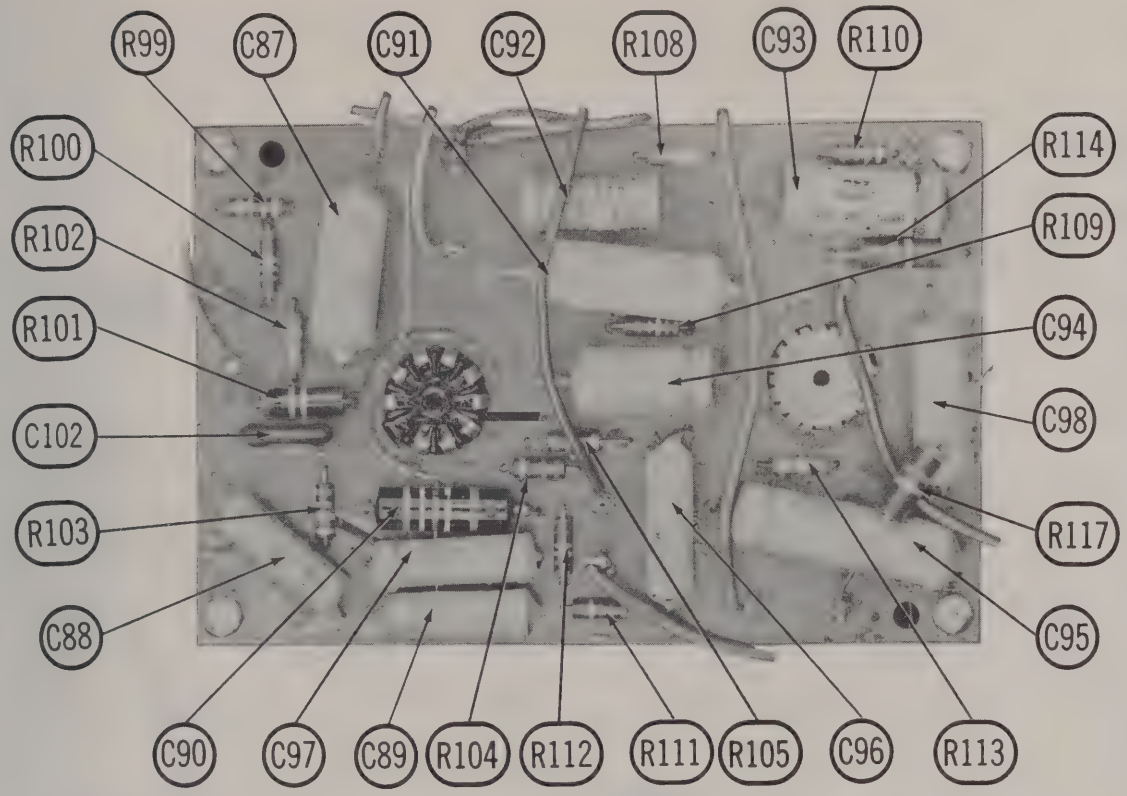
Howard W. Sams & Co., Inc. 1958

ALTERNATE REMOTE TUNING & POWER SUPPLY SCHEMATICS



VERTICAL PRINTED BOARD

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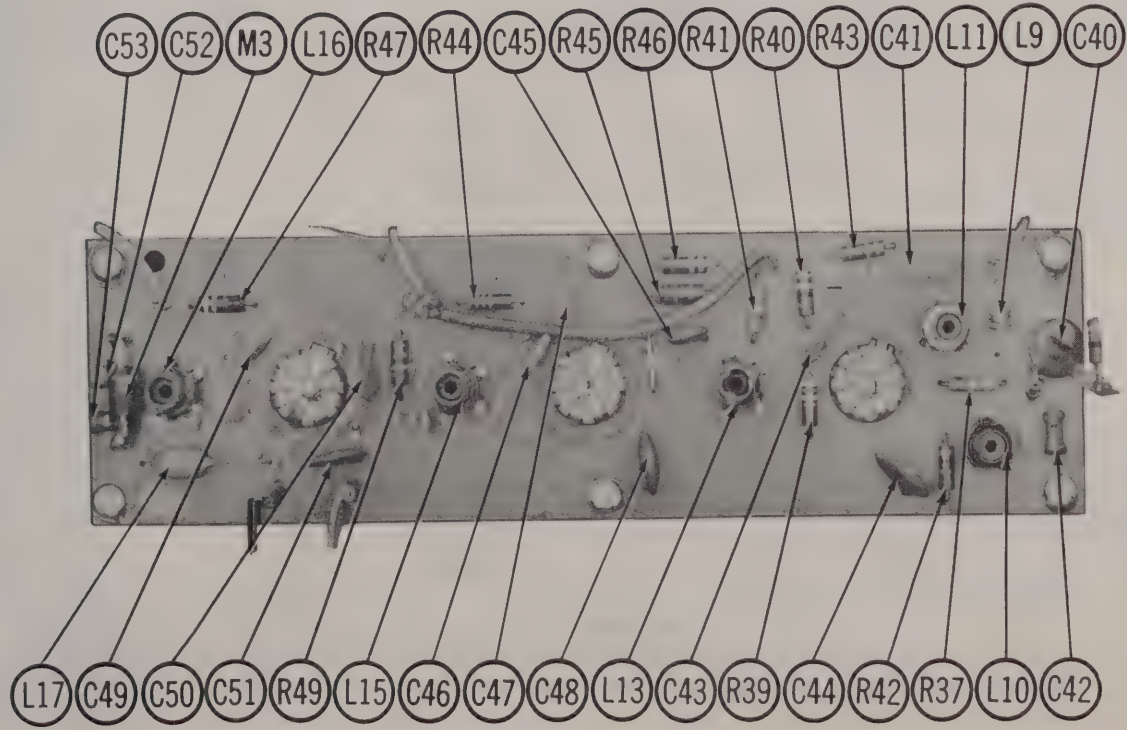
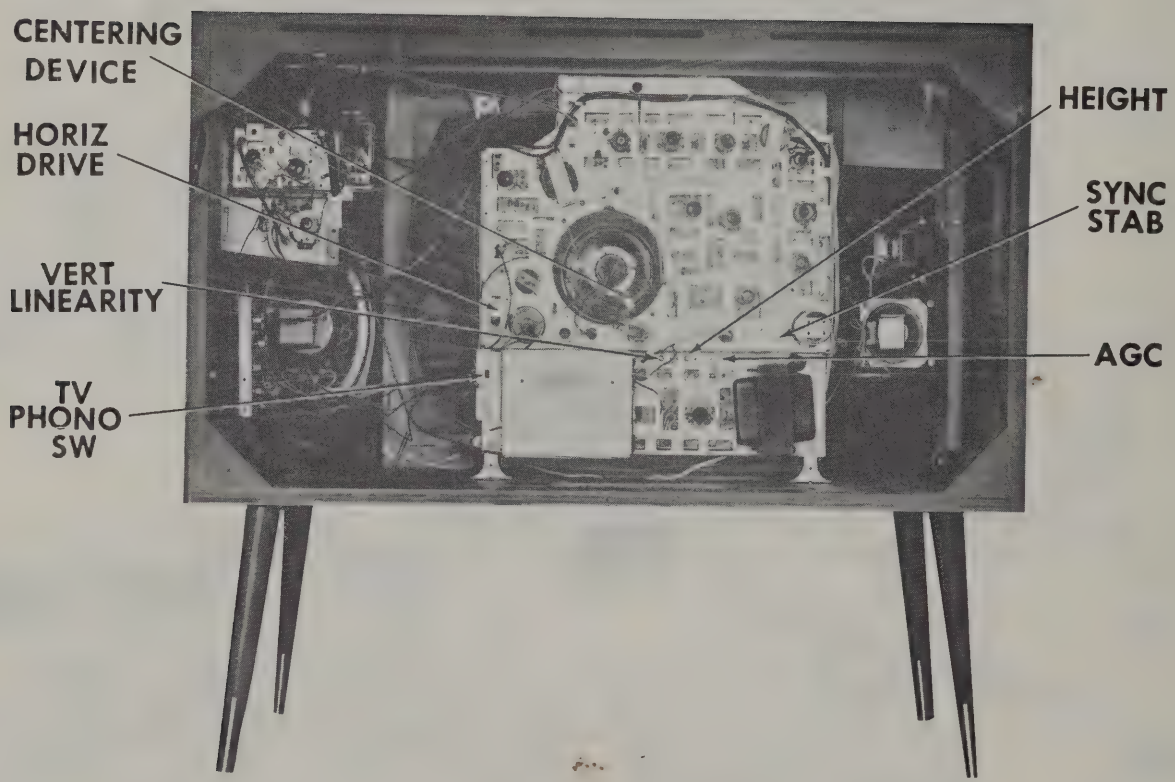


VIDEO IF—PRINTED BOARD



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a short clip lead across the horizontal waveform coil (L29) and adjust the horizontal hold control until the picture pulls into sync. Remove the clip lead.

Connect the vertical amplifier of a scope thru a low capacity probe to point ⟨H⟩. Low side to chassis. Turn the horizontal hold control clockwise until the picture falls out of sync, then counter clockwise until the picture just pulls into sync. Adjust the horizontal waveform slug (B1) until the waveform on the scope appears similar to that shown in Fig. 5 with peaks of equal amplitudes. If necessary, during this adjustment, keep the picture in sync with the horizontal hold control. Remove the scope connections.

Turn the horizontal hold control until the picture falls out of sync with the diagonal lines sloping down to the left. Slowly turn the control counter clockwise and note the number of diagonal bars obtained just before the picture falls into sync. Pull-in should occur with one and one-half to three bars present. Set the width slug (B3) fully counter clockwise.

With the horizontal hold control set at the pull-in point, adjust the horizontal drive trimmer (B2) counter clockwise until a bright vertical line in the center of the picture appears. Turn B2 clockwise until the drive line disappears. If no drive line appears, set B2 fully counter clockwise.

Set the brightness and contrast controls to normal and adjust the width slug (B3) for a picture SLIGHTLY wider than necessary to fill the picture mask horizontally.

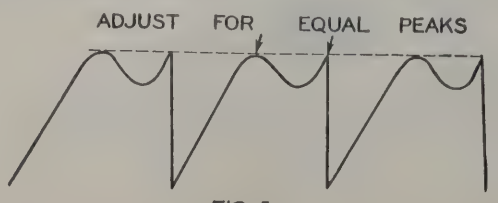


FIG. 5

PHOTOFACT* Folder
*TRADE MARK
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

SILVERTONE CHASSIS 528.51100, 528.51102, 528.51104, 528.51112, 528.51113, 528.51142, 528.51143, 528.51152, 528.51153

SILVERTONE CHASSIS 528.51100, 528.51102, 528.51104, 528.51112, 528.51113, 528.51142, 528.51143, 528.51152, 528.51153

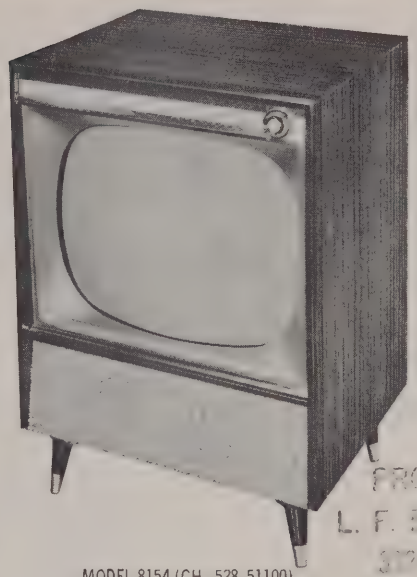
DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 6 push-on type knobs from the front.
2. Remove 11 wood screws holding the rear cover. Remove the rear cover.
3. Remove 2 wood screws holding the AC interlock assembly.
4. Remove the picture tube socket, beam alignment magnet (if set has one), yoke clamp, HV lead and speaker leads.
5. Remove 2 hex nuts holding the tuner and control bracket.
6. Remove 2 wood screws holding the top chassis brace.
7. Remove 2 chassis bolts from the bottom.
8. Remove the chassis, tuner and yoke.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.



MODEL 8154 (CH. 528.51100)

PROPERTY OF
L. F. BLANKENSHIP
3124 MEADE ST.
DENVER, COLORADO

TRADE NAME	Silvertone			
	MODELS	CHASSIS	MODELS	CHASSIS
	8114, 8116, 8154, 8156, 8158, 8182	528.51100	8160, 8162, 8184, 8186, 8188	528.51140
	8114, 8116, 8154, 8156, 8158, 8182	528.51102	8160, 8162, 8184, 8186, 8188	528.51142
	8114, 8116, 8154, 8156, 8158, 8182	528.51104	8160, 8162, 8184, 8186, 8188	528.51143
	8115, 8117, 8155, 8157, 8183	528.51110	8161, 8163, 8185, 8187	528.51150
	8115, 8117, 8155, 8157, 8183	528.51112	8161, 8163, 8185, 8187	528.51152
	8115, 8117, 8155, 8157, 8183	528.51113	8161, 8163, 8185, 8187	528.51153
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Avenue, Chicago, Illinois			
TYPE SET	Television Receiver			
TUBES	Fifteen			
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 160 Watts, 1.3 Amp. @ 117 Volts AC			
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)			

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments (located in a circle around the shaft) should be made in sequence from the highest to the lowest channel in the area. Channel 13 adjustment is located at 1 o'clock, proceed in a counter clockwise direction adjusting for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 6 push-on type knobs. Remove 5 wood screws from the bottom edge of the escutcheon. Remove the escutcheon and safety glass.

SPECIAL ADJUSTMENTS

A. AGC
Observe the picture and advance the AGC control to a point where the picture distorts or a buzz is heard in the sound. Back off from this setting until the picture becomes stable with no noise in the sound.

B. Focus
Focus may be varied by changing the connection from pin 6 of the picture tube socket to one of four connection points on the printed board as shown in the photo "Cabinet Rear View". Some picture tubes may be equipped with a beam alignment magnet which may be moved on the picture tube neck to provide the best focus.

C. Width
The width may be varied by means of a metallic sleeve located between the yoke and the picture tube neck. Adjust sleeve in or out of the yoke for a picture SLIGHTLY larger than necessary to fill the screen.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The horizontal frequency coil is used as the horizontal hold control. Adjust the horizontal hold until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A11) located on top of chassis.

FUSE DEVICE

A circuit breaker is used for LV power supply protection and may be reset by depressing the reset button. (For location, see tube placement chart).

CENTERING

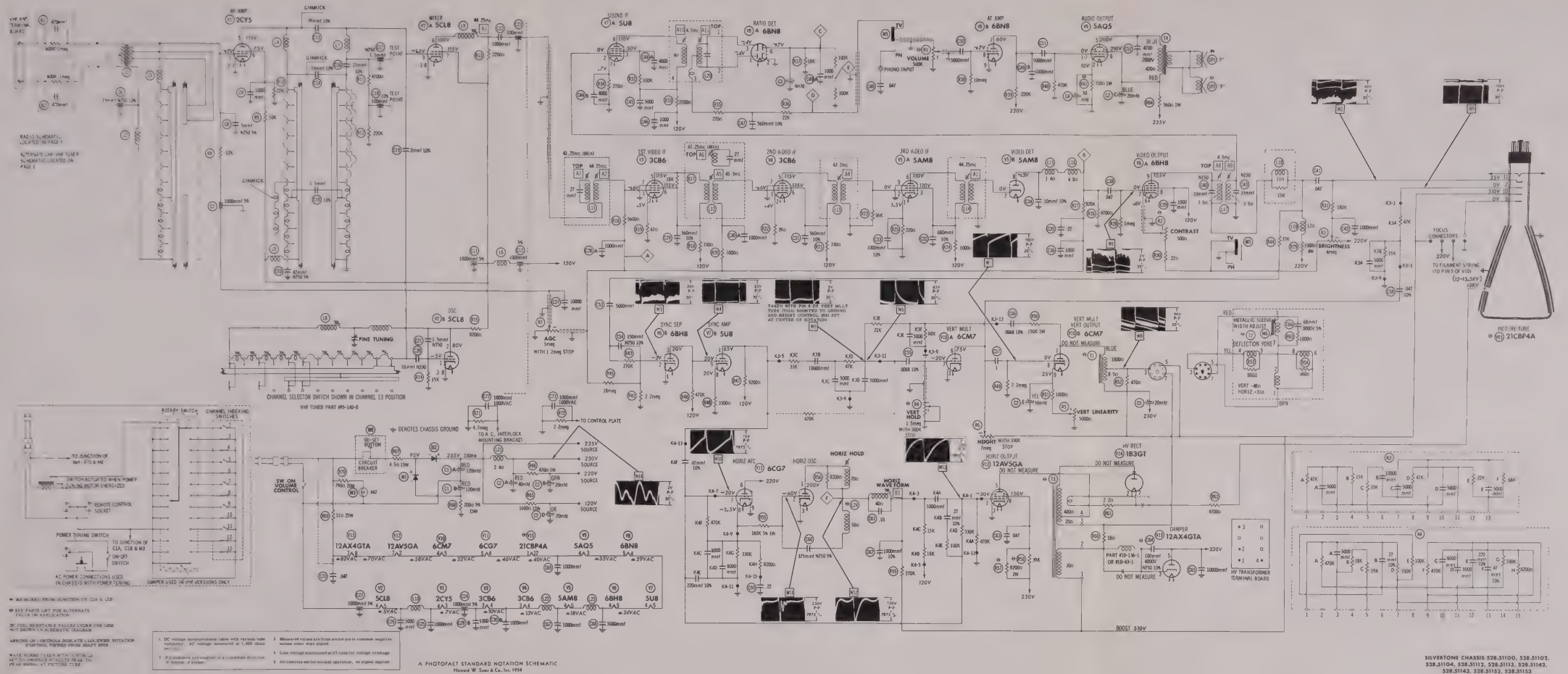
Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H288

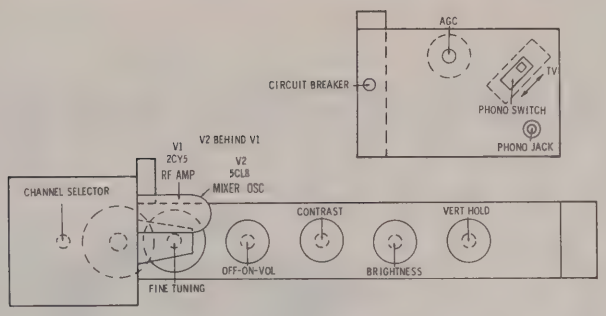
FOLDER 3



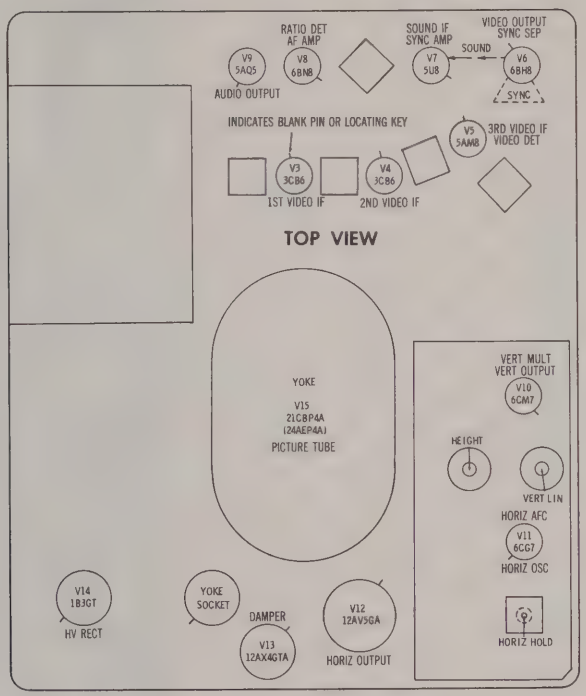
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1,000 ohms per volt.
2. P.C. boards are mounted in a clockwise direction — bottom of sticker.
3. Measured values are from socket pin to common negative unless other wise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

TUBE PLACEMENT CHART



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

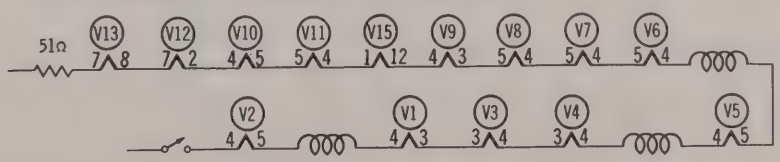
POWER SUPPLY FAILURE
No raster, no sound - **Circuit Breaker (M8), Rectifier (M1, M2)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, V6**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V15**
Has pic, no sound - **V7, V8, V9**

SYNC FAILURE
No vert. sync - **V6, V7**
No horiz. sync - **V8, V7, V11**
No vert. or horiz. sync - **V6, V7**

SWEEP FAILURE
No raster, has sound - **V11, V12, V13, V14, V15**
No vertical deflection - **V10**
Poor vert. linearity or foldover - **V10**
Poor horiz. linearity or foldover - **V11, V12, V13**
Narrow picture - **V11, V12, V13, M1, M2**
Vert. off freq. - **V10**
Horiz. off freq. - **V11**

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below).



SILVERTONE CHASSIS 528.51100, 528.51102, 528.51104, 528.51112, 528.51113, 528.51142, 528.51143, 528.51152, 528.51153

FOLDER 3

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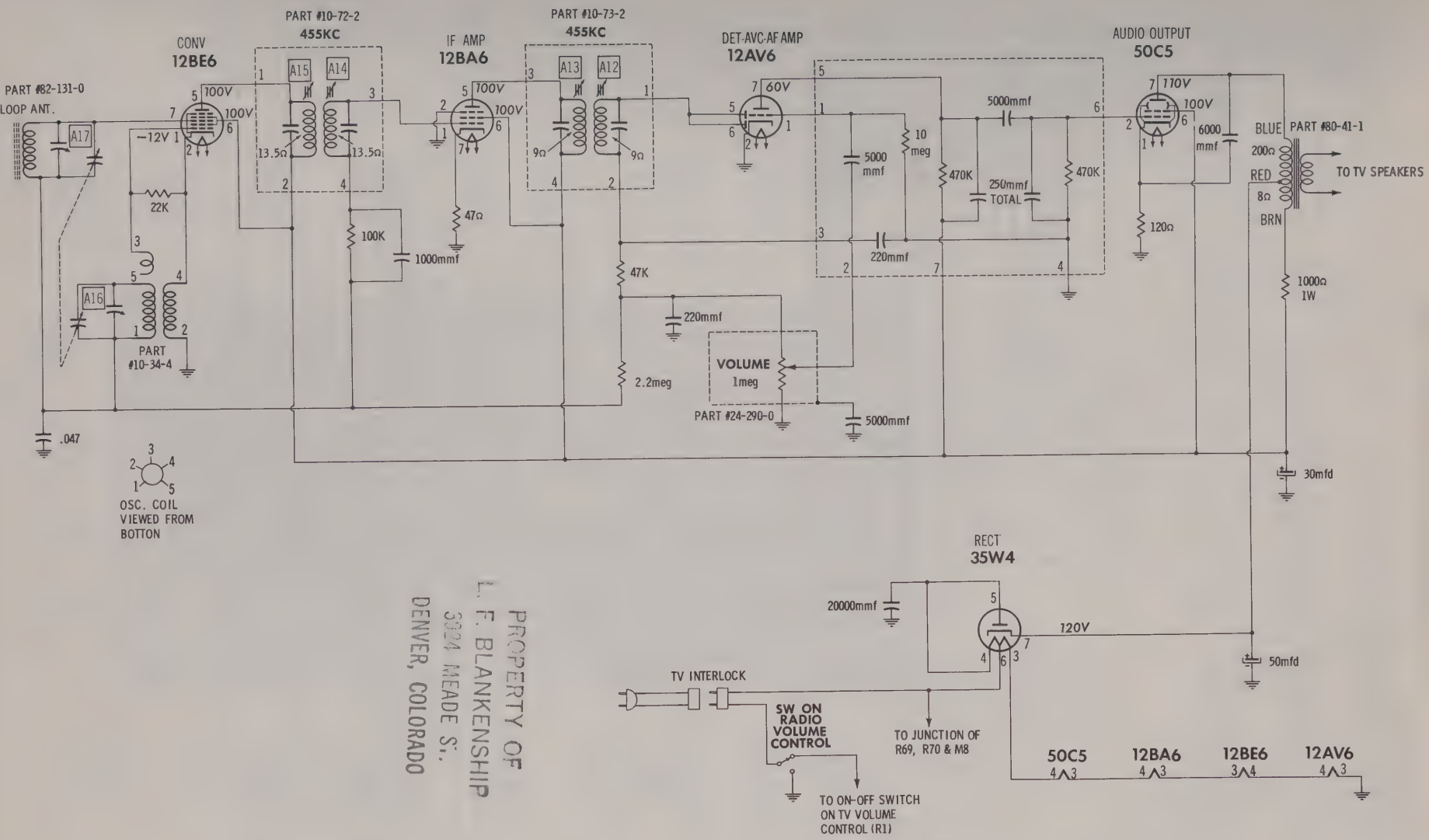
CHASSIS BOTTOM VIEW

SILVERTONE CHASSIS 528.31100, 528.31102, 528.31104, 528.31112, 528.31113, 528.31142, 528.31144, 528.31145, 528.31151, 528.31152

FOLDER 3



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RADIO CHASSIS 528.53190, MODEL #7777

RADIO SCHEMATIC

SILVERTONE CHASSIS 528.5110O, 528.5110Z, 528.51104, 528.51112, 528.51113, 528.51142, 528.51143, 528.51152, 528.51153

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓐ . Positive to chassis.
Detune A2, A3, A5, A6 and A7 by turning the cores almost all the way out of their coil forms.
Use only enough generator output to provide a usable indication on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	Place a thin insulated metal strip between the mixer-osc. tube (V2) and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	44.25MC (Unmod)	Any non-interfering channel	DC probe to point Ⓑ . Common to chassis.	A1, A2, A3	Attenuate generator output to maintain approximately 2 volts on VTVM. Adjust for maximum deflection.
2.	"	"	43.2MC	"	"	A4	"
3.	"	"	45.3MC	"	"	A5	"
4.	"	"	47.25MC	"	"	A6	Increase generator output and adjust for MINIMUM deflection. Repeat steps 3 and 4.
5.	"	"	41.25MC	"	"	A7	Increase generator output and adjust A7 for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Attenuate the sweep generator output to maintain not more than 2 volts peak to peak on scope (-3 volts DC at point Ⓑ).
If a separate marker generator is used, loosely couple to the high side of the sweep generator output cable.
Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	Place a thin insulated metal strip between the mixer-osc. tube (V2) and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	44.25MC	41.25MC 42.75MC 43.8MC 44.25MC 45.0MC 45.75MC 47.25MC	Any non-interfering channel	Vert. Amp. thru 10K to point Ⓑ . Low side to chassis.		Check for response similar to Fig. 1. Retouch A3 to place 45.75MC marker at 50%. Retouch A2 for proper tilt.

SOUND IF ALIGNMENT

Connect two matched 100K (±1%) resistors in series from point Ⓒ to chassis. The junction of these two resistors is alignment point Ⓔ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.001mfd	High side to point Ⓑ . Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point Ⓒ . Common to chassis.	A8, A9, A10	Adjust for maximum deflection.
8.	"	"	"	"	DC probe to point Ⓓ . Common to point Ⓔ .	All	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

4.5MC TRAP ALIGNMENT

Tune in a local TV station and check the picture for evidence of 4.5MC beat interference. If necessary, retouch A8 until the horizontal scanning lines are smooth and continuous.

VHF OSCILLATOR ALIGNMENT

Turn the set on and allow 15 minute warm-up period. Set the fine tuning to the center of its range. This is accomplished by turning the fine tuning so that the hole in the fiber drive wheel is centered over the channel 12 oscillator adjustment hole.
Turn the channel selector to the highest frequency channel operating in the area. With a non-metallic screwdriver, adjust the proper oscillator adjustment screw for clearest picture. Always adjust the highest operating channel first, then the others in descending order.
The oscillator adjustment screws are identified by the channel number stamped into the metal next to the proper adjustment opening. Channels 7 and 8 share the same screw for adjustment, all others have separate adjustment screws.
Be very careful not to turn any of the adjustment screw too far counter clockwise, or they will fall out and necessitate the removal of the chassis to replace them.

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

UHF TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

ALIGNMENT INSTRUCTIONS (cont)

RADIO ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
9.	.1mfd	High side to pin 7 (grid) of converter (12BE6). Low side to B-.	455KC (400~ 30% AM Mod)	Radio	Tuning gang fully open	Across voice coil	A12, A13 A14, A15	Adjust for maximum deflection.
10.	"	"	1620KC	"	"	"	A16	"
11.		Loop	1400KC	"	1400KC	"	A17	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

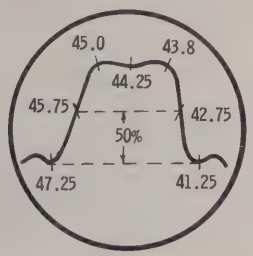

FIG.1

PROPERTY OF
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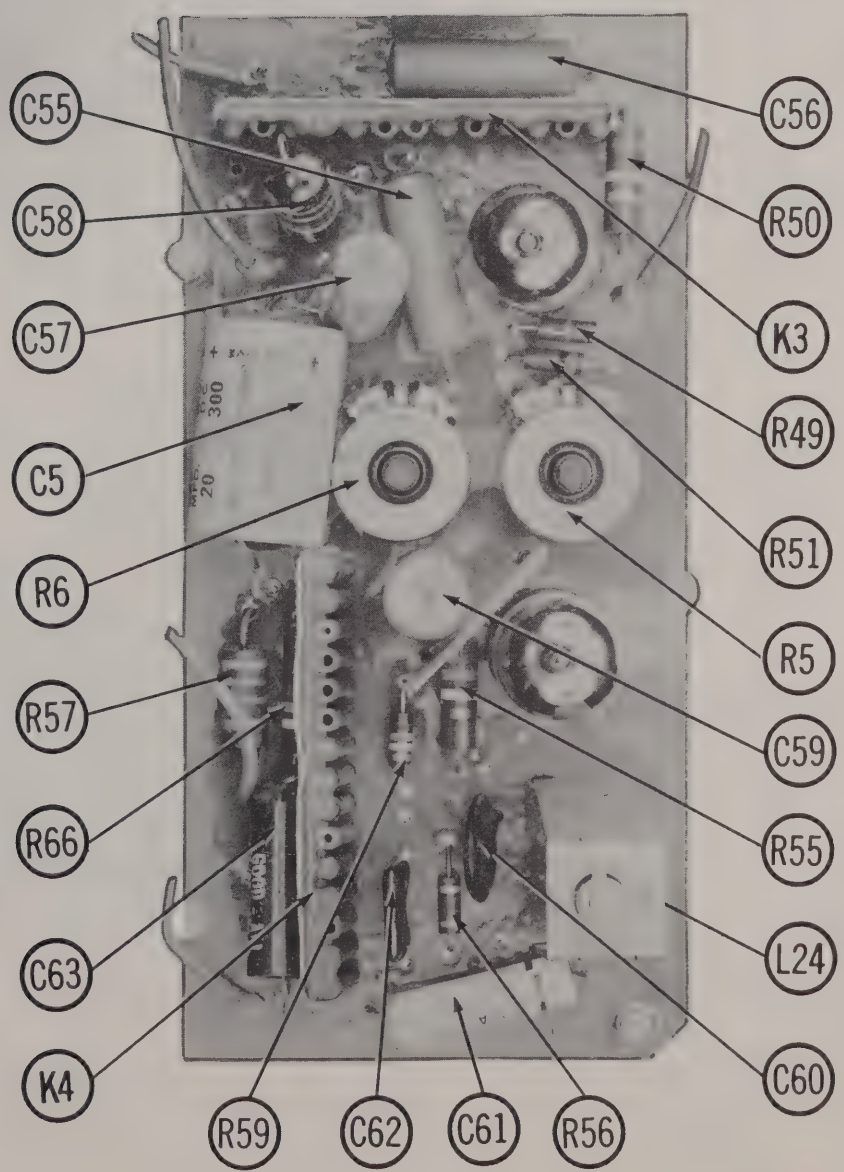
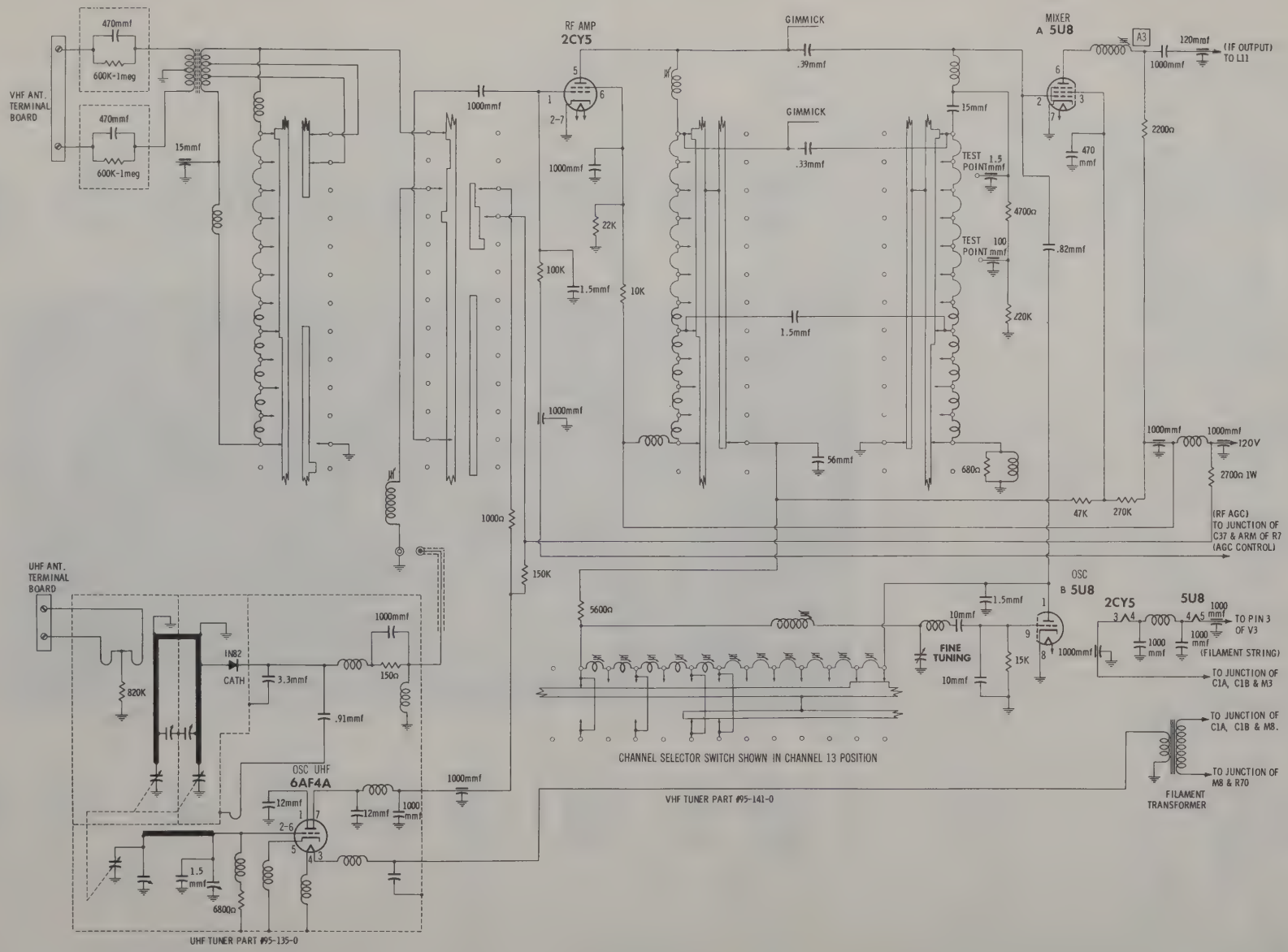
3924 MEADE ST.
DENVER, COLORADO



PRINTED BOARD

SILVERTONE CHASSIS 528.51100, 528.51102, 528.51104, 528.51112, 528.51113, 528.51142, 528.51143, 528.51152, 528.51153

FOLDER 3



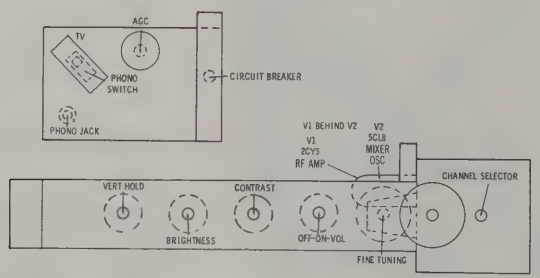
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

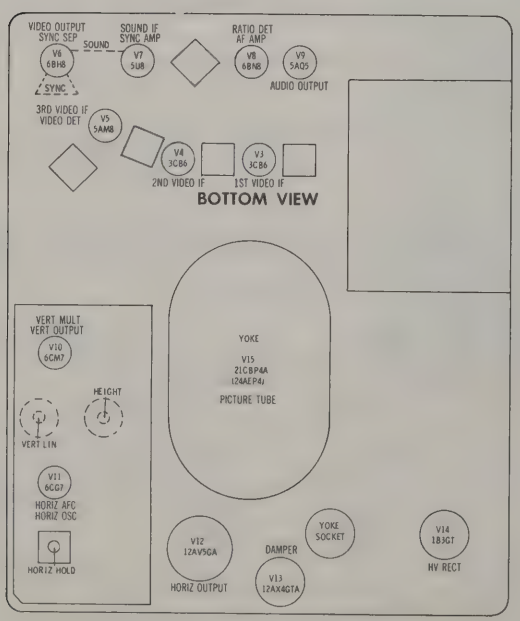
ALTERNATE TUNER SCHEMATIC

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	2CY5	• 650K	0Ω	▲ 2Ω	▲ 1.5Ω	† 1600Ω	† 10K	0Ω		
V2	5 CL8	15K	† 9800Ω	0Ω	▲ 0Ω	▲ 1.5Ω	† 3800Ω	† 1600Ω	0Ω	225K
V3	3CB6	650K	47Ω	▲ 2Ω	▲ 3Ω	† 1900Ω	† 1900Ω	0Ω		
V4	3CB6	650K	39Ω	▲ 3Ω	▲ 4Ω	† 1900Ω	† 1900Ω	0Ω		
V5	5AM8	220Ω	.1Ω	† 2600Ω	▲ 4Ω	▲ 5Ω	† 2600Ω	.1Ω	4700Ω	0Ω
V6	6BH8	0Ω	1.8meg	† 470K	▲ 5Ω	▲ 6.5Ω	• 110Ω	1meg	† 1600Ω	† 3700Ω
V7	5U8	† 9800Ω	3.5Ω	† 100K	▲ 6.5Ω	▲ 7.5Ω	† 3800Ω	270Ω	3300Ω	† 470K
V8	6BN8	520K	0Ω	520K	▲ 7.5Ω	▲ 9Ω	18K	† 220K	10meg	0Ω
V9	5AQ5	470K	330Ω	▲ 9Ω	▲ 10Ω	† 980Ω	† 560Ω	470K		
V10	6CM7	‡1800Ω	NC	0Ω	▲ 13Ω	▲ 11.5Ω	• ‡380K	• 800K	2.2meg	•1900Ω
V11	6CG7	† 33K	450K	0Ω	▲ 13Ω	▲ 14.5Ω	† 470Ω	430K	280K	0Ω
V12	12AV5GA	330K	▲ 14.5Ω	0Ω	NC	‡38Ω	NC	▲ 16Ω	† 6500Ω	
V13	12AX4GTA	TP	NC	¶	NC	† 2.4Ω	TP	▲ 19Ω	▲16Ω	
V14	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡438Ω
V15	21CBP4A	▲ 11.5Ω	62K	PIN 6 0Ω	PIN 10 ‡18Ω	PIN 11 • 200K	PIN 12 ▲ 10Ω			

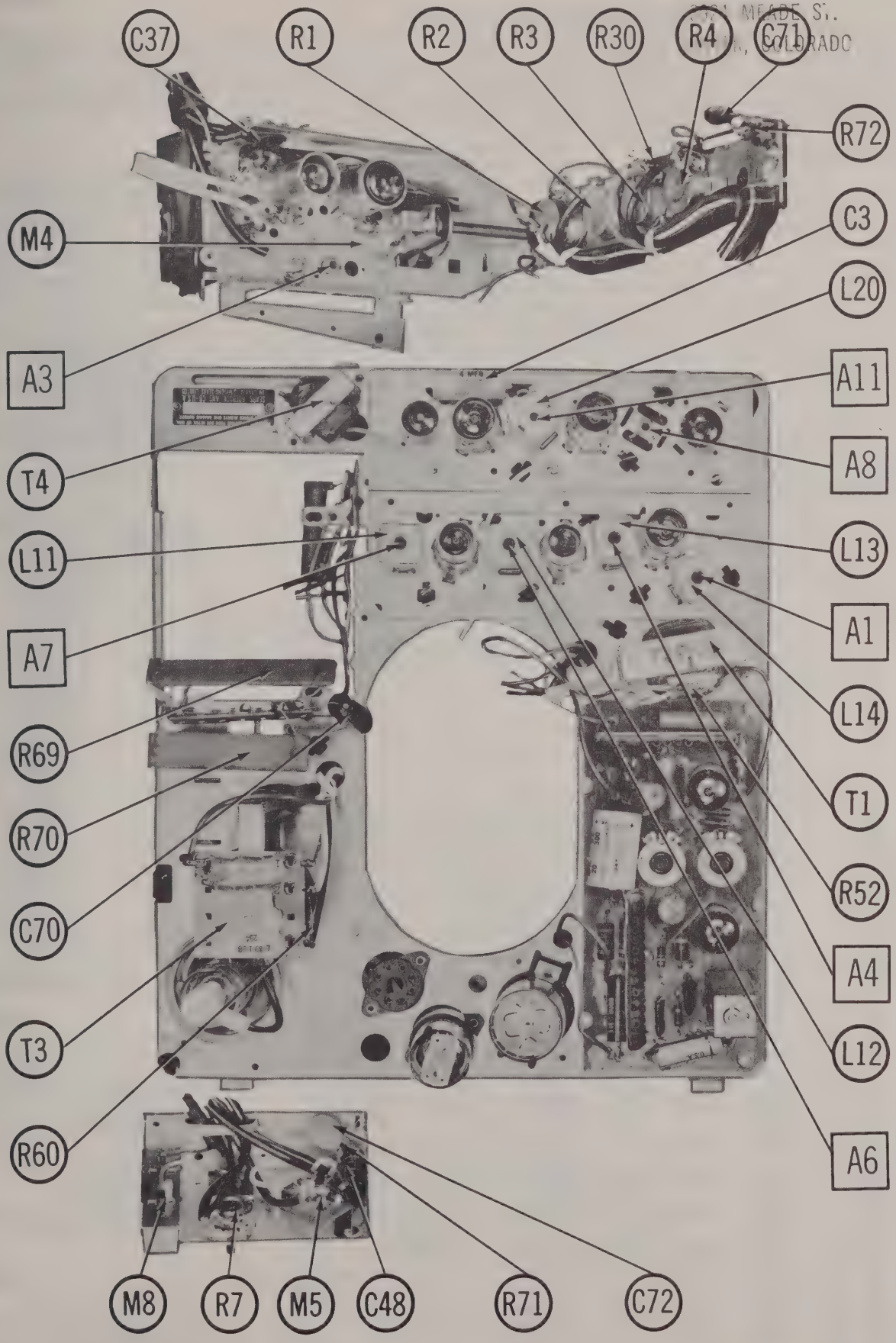
¶ THIS READING WILL VARY GREATLY, (10K MINIMUM), DUE TO THE CONDTION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 235V SOURCE.
‡ MEASURED FROM PIN 3 OF V13.
▲ MEASURED FROM JUNCTION OF C1A AND C1B.
NC NO CONNECTION.
TP TIE POINT.





TUBE PLACEMENT CHART

PROPERTY OF
L. F. BLANKENSHIP
[illegible] MEADE ST.
[illegible], COLORADO



CHASSIS TOP VIEW

SILVERTONE CHASSIS 528.51100, 528.51102, 528.51104, 528.51112, 528.51113, 528.51142, 528.51143, 528.51152, 528.51153

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	2CY5	
V2	Mixer -Osc.	5CL6	
V3	1st. Video-IF Amp	5CB6	
V4	2nd Video-IF Amp	5CB6	
V5	3rd Video-IF Amp		
	Video- Det	5AM8	
V6	Video-Output-Sync Sep	6BQ8	
V7	Sound-IF Amp -Sync Amp	5L8	

ITEM No.	USE	TYPE	NOTES
V8	Ratio Det. - AF Amp	6BN8	
V9	Audio Output	5AQ5	
V10	Vert. Multi. Vert. Output	6CM7	
V11	Horiz. AFC-Horiz. Osc	6CG7	
V12	Horiz. Output	12AV5GA	
V13	Damper	12AX4GTA	
V14	HV Rectifier	1B3GT	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	SILVERTONE PART No.	GENERAL ELECTRIC PART No.	R-A PART No.	SYLVANIA PART No.	
V15	24-285-1	21CEP4	21ACP4	21ACP4	1 Silverama 2 Silver screen '85'
	24-287-4	21AEP4	21AEP4	21AFP4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP	VOLT	SILVERTONE PART No.	AEROVOX PART No	CORNELL DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No	SANGAMO PART No	SPRAGUE PART No
C1A	.20	150	48-50-5	PRS2-050					R2520 *
B	.20	150							
C2A	40	300	48-23-2	PRS3-300		WV404			R2325 *
B	20	300							
C	20	300							
D	20	300							
E	80	50							
C3	4	50	48-25-0	PRS1.50V4	BBR4 50	TC30	TD-4-50	MT-0504	TVA-1402
C4	50	25	48-32-0	PRS25V50	BBR50 25	TC29	TD-50-25	MT-0250	TVA-1206
C5	10	150	48-57-5	NP-PRS2500	BBR635	TC78 †	TD-40-350	MT-4540 †	R2449 *
				V20PRS4035		TC78 †	TD-40-350	MT-4540	

* Non-standard value
† Connect negative ends together

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No	
C8	15		282-150						MT50 10%	
C7	1000		344-4				TCT-5		5%	
C9	5		230-509	NT50-E1 5	TCN-5		TCT-5		MT50 5%	
C10	3000		2033-23	BPD-001	DD-102	BYAS2L	ED-1000	DC52L	561K-DI	
C10	47		333-470		TCN-47		TCT-47		MT50 5%	
C11	1000		344-4						5%	
C13	1000		344-4						5%	
C12	.33		2101-336						10%	
C14	.33		2101-338						10%	
C15	1.5		2101-159						10%	
C16	15		282-150	NPO-DI 15	TCE-15	L10QS5	ED-15		MT50	
C17	1.5		259-159						10%	
C18	100		282-101						MS500 10%	
C19	2		2101-209						10%	
C20	10		164-100						MS30	
C21	1.5		170-159						MT50	
C22	1000		2033-23	BPD-001	DD-102	BYAS2L	ED-1000	DC52L	561K-DI	
C23	100		282-101	KT-001	MPT-100				5%	
C24	1000		344-4							
C25	1000		2033-23	BPD-001	DD-102	BYAS2L	ED-1000	DC52L	561K-DI	
C26	1000		2033-23	BPD-001	DD-102	BYAS2L	ED-1000	DC52L	561K-DI	
C27	1000		344-4						5%	
C28A	1000		10-10218	BPD-EK001	DDS-102	BYCSDDI	EDS-001	DCD52L	561K-EDA	
B	1000									
C29	680		15-54111		DS-681	1RST68	ED-680		MS-356	10%
C30A	1000		15-10218	BPD-EK001	DDS-102	BYCSDDI	EDS-001	DCD52L	561K-EDA	
B	1000									
C31	680		15-54111		DS-681	1RST68	ED-680		MS-356	10%
C32	680		15-54111		DS-681	1RST68	ED-680		MS-356	10%
C33	1000		15-10521			1RSD2	ED-1000		MS-52	10%
C34	10		15-10051	NPO-DI 10	DD-100	L10QS	ED-10	S7-S42	S7CC-Q2	10%
C35	22	300	15-52438	P36BN-22		CUS2F22		GEM-3022	27M-P22	
C36	1000		15-10217	BPD-001	DD-102	BYAS2L	ED-1000	DC52L	561K-DI	
C37	10000		15-10217	BPD-003	DD-103	BYAS6L	ED-10K	DC53L	561K-EI	
C38	.047	400	15-47133	P36BN-047	DF-503	CUS2B47		GEM-4147	27M-S47	
C39	1000		15-10217	BPD-001	DD-102	BYAS2L	ED-1000	DC52L	561K-DI	
C40	33									M150
C41	.047	400	30-847-2	P46BN-047	DF-503	CUB2B47		GEM-4147	47M-S47	
C42	1000		15-10217	BPD-001	DD-102	BYAS2L	ED-1000	DC52L	561K-DI	
C43	33									M150
C44A	6000		30-34-0	BPD-EK004	DD-603	BYCSDD4	EDS-004	DCD63L	561K-ED4	
B	6000				DD-603					
C45	5000		15-50217	BPD-006	DD-502	BYAU0S	ED-005	DC53S	561K-D5	
C46	1000		15-10217	BPD-001	DD-102	BYAS2L	ED-1000	DC52L	561K-DI	
C47	560		15-54111		DS-561	1RST56	ED-560		MS-356	10%
C48	.047	600	30-847-4							
C48A	1000		15-10218	BPD-EK001	DDS-102	BYCSDDI	EDS-001	DCD52L	561K-EDA	
B	1000									
C50	5000		15-50217	BPD-006	DD-502	BYAU0S	ED-005	DC53S	561K-D5	
C51	5000		15-50217	BPD-006	DD-502	BYAU0S	ED-005	DC53S	561K-D5	
C52	4700	3000	15-47217		DD30-472	BYCSD047			30EK-D5	
C53	5000		15-50217	BPD-006	DD-502	BYAU0S	ED-005	DC53S	561K-D5	
C54	150		15-15114	NT50-D1 150	TCN-150	C10TM1U	TCT-150		GEM-16268	MT50 10%
C55	.0068	600	15-68357						GEM-16268	10%
C56	.0068	600	15-68357						GEM-16268	10%
C57	.1		15-10459	P49BN-1	DF-104	CUB4P1		47M-P1	GEM-401	
C58	.047	400	15-47347							
C59	33		15-33639	P36BN-33		CUB2P33			GEM-3033	27M-P33
C60	375		30-90-0							M750 5%
C61	.02	600	30-19-1							
C62	1000		17-10219	1484-001		1RS2L	ED-1000	MCB32S	MS-21	10%
C63	.047	400	15-47348	P46BN-047	DF-503	CUB4B47		GEM-4147	47M-S47	
C64	100	4000	15-10264							M750 10%①
C65	10000		15-10317	BPD-01	DD-103	BYAS6L	ED-01	DC53L	561K-EI	
C66	68	3000								5%
C67	1000		15-10217	BPD-001	DD-102	BYAS2L	ED-1000	DC52L	561K-DI	
C68	5000		15-50217	BPD-006	DD-502	BYAU0S	ED-005	DC53S	561K-D5	
C69	1000		15-10217	BPD-001	DD-102	BYAS2L	ED-1000	DC52L	561K-DI	
C70	.047	600	30-847-4							

CAPACITORS (cont)

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP	VOLT	SILVERTONE PART No.	AEROVOX PART No	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No	MALLORY PART No	SPRAGUE PART No	
C71	1000	1000 VAC	23-94-0							
C72	1000	1000 VAC	20-94-0							

① Value will vary from 80 to 135mmf ② 4000V. Replace with value found in chassis.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA						INSTALLATION NOTES
	RESISTANCE	WATTS	SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.		
R1A	500K	1	24-255-C	B-50	A47-500K-2	Q43-133	TA50A		Volume - Note 1
B	Shaft			Not Req.	KSB-3	Not Req.	Not Req.		
C	Switch			KS-1	SWE-12	76-1	US-36		
R2A	500Ω	1	24-78-1	B-4	A47-500-a	Q41-103	TA52L		Contrast - Note 3
B	Shaft			Not Req.	KSB-3	Not Req.	Not Req.		
R3A	4meg	1	24-264-1	B-98	A47-4meg-d				Brightness
B	Shaft			Not Req.	KSB-3	Not Req.	Not Req.		
R4A	1 5meg	1	24-79-1	B-69 *	A47-1meg-s*	Q41-137 *	TA35L *		Vert. Hold with 300K stop- Note 3
B	Shaft			Not Req.	KSB-3	Not Req.	Not Req.		
R5	50000	1	24-267-1						Vert Lin
R6	5meg	1	24-266-1						Height with 350K stop
R7A	5meg	1	24-91-1		A47-4meg-d				AGC with 1 2meg stop
B	Shaft				KN-3				

Note 1 Alternate part #24-264-0 used in Ch. 528, 531A0, 142, 143. Alternate part #24-255-0 may be used in some versions.
Note 2. Alternate part #28-76 may be used in some versions of Ch. 528, 5L00.
Note 3. Alternate part #28-79 may be used in some versions of Ch. 526, 5L00.
* Connect a 300K resistor in series with right hand terminal
† Connect a 1. 2meg resistor in series with right hand terminal

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SILVERTONE PART No.	DENVER SILVERTONE PART No.	
R8	12K		106-123		
R9	10K		106-103		
R10	22K		106-223		
R11	4700Ω		106-472		
R12	220K		106-224		
R13	2200Ω		106-222		
R14	15K		106-153		
R15	8200Ω		106-822		
R16	6800Ω		60-16320		
R17	18K		60-16310		
R18	3300		60-33102		
R19	47Ω		60-47000		
R20	1000Ω		60-10202		
R21	330Ω		60-33102		
R22	39Ω		60-39001		
R23	56K		60-56501		
R24	1000Ω		60-10202		
R25	220Ω		60-22101		
R26	47000		60-47302		
R27	820K		60-82401		
R28	1meg		60-10502		
R29	100K		60-10401		
R30	22000	4	60-22202		
R31	220		60-22100		
R32	180K		60-18401		
R33	100K		60-10401		
R34	22K		60-22302		
R35	2700		60-27201		
R36	220Ω		60-22101		
R37	22K		60-22302		
R38	18K		60-18301		
R39	10meg		60-10802		
R39	220K		60-22402		

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SILVERTONE PART No.	DENVER SILVERTONE PART No.	
R40	470K		60-47402		
R41	330Ω	1	60-33101		Note 1
R42	2 2meg		60-22501		
R43	270K		60-27401		
R44	33K		60-33302		
R45	1meg		60-10501		
R46	470K		60-47401		
R47	82000		60-82301		
R48	33000		60-33201		
R49	2 2meg		60-22502		
R50	1500	1	60-15401		
R51	1000Ω		60-10202		
R52	47Ω		60-47102		
R53	560Ω				
R54	560Ω				
R55	160K 5%	1	60-16415		
R56	82000		60-82201		
R57	82000	2	60-82231		Note 2
R58	39K		60-39301		Note 2
R59	270K		60-27401		
R60	150		60-15001		
R61	2.2Ω		60-22901		
R62	47000		60-47202		
R63	10000				
R64	5600		60-56101		
R65	1600Ω	15	61-13		
R66	470Ω	15	61-4712		
R67	4 5Ω	15	61-115		
R68	200Ω 5%	15	61-41		
R69	5Ω	25	61-115		
R70	790Ω	20	61-119		
R71	4 7meg		60-47502		
R72	2 2meg		60-22502		

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	SILVERTONE PART No.	Hallodorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	Vert. Output	B80-1-2-C	Z2B07 ①	A-2824 ①	V31S ①	VO-101 ①	26S78 ①	A-11SX ②	
T2A	Alt. Vert Output	80-1-2							
B	Yoke-Horiz (S.MD) (90°)-Vert. (40Mdl)	C80-2-4J ③	DF607 ③ ⑤	MDF-02 ⑤	Y90T19/43 ④ ⑤	DY-16A ⑤	Y-46 ④	Y-41 & NW5 ③	
	Alt. Yoke	80-2-4 ③							
T3	Horiz Output	C80-1-3B							
	Alt. Horiz. Output	80-1-3B							

1. Cut and tape blanking lead.
2. Drill new mounting hole(s).
3. Includes rear cover, centering device and yoke plug.
4. Contact same as original and use original rear cover, centering device and width sleeve.
5. Use original horizontal damping network, if necessary.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	SILVERTONE PART No.	Hallodorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T4	6500Ω	3-4Ω	80-5-1	Z1J10	A-3028	A-3577 ①	34S48	S-8X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V C IMP.	SILVERTONE PART No.	QUAM PART No	
SP1	5"	PM	8-8Ω	33-301-4 1	5A0TR27 5	① Parallel and phase
SP2	5"	PM	8-8Ω	33-301-4 1	5A0TR27 5	② Used in Models 8154, 55, 56, 57, 58, 60, 61, 62, 63, 64, 65, 66, 67, 68
	6"x9"	PM	8-8Ω	33-317-4 2		③ Used in Models 8101, 02, 03, 04, 05, 06, 07, 08
	5"	PM	3-4Ω	33-258-4 3		④ Used in Models 8101, 02, 03, 04, 05, 06, 07, 08
						⑤ Used in Models 8114, 15, 16, 17

COILS (RF-IF)

ITEM No.	USE	SILVERTONE PART No.	NOTES
L1	Ant. Trans	2309-5	
L3	Ant. Coil	310-5	Channel 13
L3	Ant. Coil	310-8	Channel 13
L4	RF Coil	313-7	Channel 13
L5	RF Choke	301-38	
L6	RF Choke	300-16	

ITEM No.	USE	SILVERTONE PART No.	NOTES
L7	Mixer Grid Coil	313-6	
L8	Osc. Coil	300-4	Channel 13
L9	Mixer Plate Coil	311-9	
L10	Fil. Choke	300-30	

ITEM No.	USE	REPLACEMENT DATA					NOTES
		SILVERTONE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L11	1st. Video IF	10-8-2		TV-1S7	6323		Includes 41. 25MC Trap
L12	2nd. Video IF	10-76-2		TV-1S8	6233		Includes 47. 25MC Trap
L13	3rd. Video IF	10-7-2		TV-1S04	TV-125	6234	
L14	4th. Video IF	10-8-3		TV-1S05	TV-126	6234	
L15	Resonant Choke	10-68-1					12 Microhenries
L16	Series Peaking Coil	10-64-1	10-4080	TV-1S3	6110		60 Microhenries
L17A	4.5MC Trap	10-91-		TV-1S0			
B	Sound IF						
L18	Series Peaking Coil	10-68-1		TV-1S8 *	6130 *	VP-6 *	270 Microhenries, wound on 15K resistor
L19	Shunt Peaking Coil	10-86-1	10-3350	TV-1S8	6130	VP-6	309 Microhenries
L20	Ratio Det.	10-3-0		TV-1S5	6306	SD-4	
L21	RF Choke	10-138-1	10-3350	TV-1S8	6130	VP-6	270 Microhenries
L22	Fil. Choke	10-43-1	10-1002	BC-563	4606		2.5 Microhenries
L23	Fil. Choke	10-43-1	10-1002	BC-563	4606		2.5 Microhenries

* Parallel with 15K resistor

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES		REPLACEMENT DATA						NOTES
	PRI	SEC	SILVERTONE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	
L.24	70Ω *		10-132-0 ①						Waveform Coil -400 * Tapped @ 50Ω ① Part #10-132-1 used in Ch 528, 5L00, 152, 153

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No	REPLACEMENT DATA
K1	Antenna Isolation	600K, 1meg, 470mmf	330-1	Sprague R-R175
K2	Antenna Isolation	600K, 1meg, 470mmf	330-2	Sprague R-R170
K3	Vert. Circuit	8000mmf, 10000mmf, 8000mmf, 9000mmf, 10000mmf, 47K, 15K, 33K, 47K, 22K, 68K	13-13-8	Erie 713-01
K4	Horiz. Circuit	5000mmf, 27mmf 10%, 8000mmf, 8000mmf, 220mmf 10%, 47mmf 10%, 470K, 18K, 15K, 330K, 100K, 470K, 330K, 8200Ω	13-11-5	Erie 716

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	SILVERTONE PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	230A	83-528 ①	1090A ①	1N607 ②	RS300 ①	300 ①	① Selenium type.
M3	250A	83-529 ①	1090A ①	1N607 ②	RS300 ①	M600 ③ 300 ① M500 ③	② Germanium type. ③ Silicon type.

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M2	Dial Lamp	56-7	#47
M4	Tuner	90-140-2	VHF - Used in VHF chassis only
	Tuner	90-141-0	VHF - Used in UHF-VHF Chassis
	Tuner	90-125-0	UHF - Used in UHF-VHF Chassis
M5	Switch		Audio-TV, Slide Type (SPST)
M6	Width Device	83-1052	
M7	Centering Device	83-838	Includes yoke cover
	Centering Device	83-1024	Includes yoke cover (Alternate)
M8	Circuit Breaker	43-1-5	
	Magnet	37-66-2	Beam Alignment
	Motor	89-104	Automatic Tuning
	Motor	89-108	Automatic Tuning
	Printed Board	54-4023	Horiz. and Vert. - less tubes

SILVERTONE CHASSIS 528,5110O, 528,5110Z, 528,51104, 528,51112, 528,51113, 528,51142, 528,51143, 528,51152, 528,51153

FOLDER 3

PARTS LIST AND DESCRIPTIONS (Continued)

CABINETS & CABINET PARTS

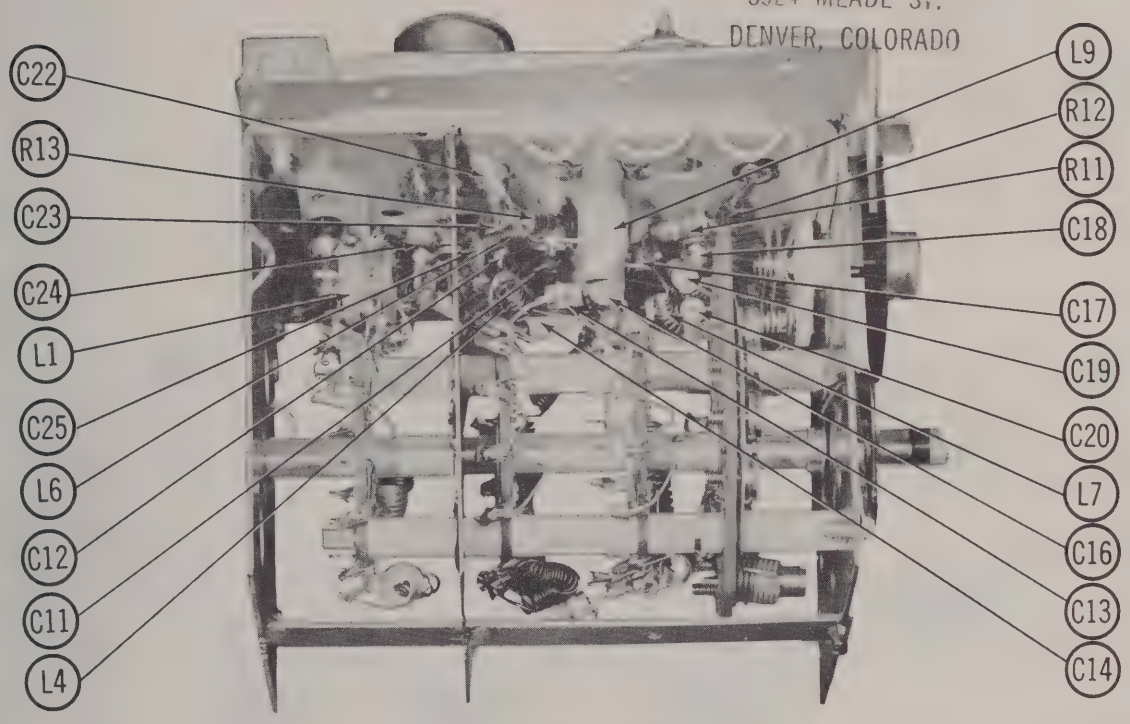
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	48-138-0	Models 8114, 15, 16, 17, 54, 55, 56, 57, 58
Safety Glass	48-143-0	Models 8160, 61, 62, 63
Safety Glass	48-141-0	Models 8182, 83
Safety Glass	48-142-0	Models 8184, 85, 86, 87, 88
Mask	40-4-4	Models 8114, 15, 16, 17, 54, 55, 56, 57, 58
Mask	40-7-4	Models 8160, 61, 62, 63
Mask	40-5-4	Models 8182, 83
Mask	40-8-4	Models 8184, 85, 86, 87, 88
Knob	52-904-0	Channel Selector - Models 8114, 16, 54, 56, 58, 82
Knob	52-910-0	VHF Channel Selector - Models 8115, 17, 55, 57, 83
Knob	52-914-0	Channel Selector - Models 8160, 62, 84, 86, 88
Knob	52-913-0	VHF Channel Selector - Models 8161, 63, 85, 87
Knob	52-880-0	Aux. Control (5 used)
Knob	52-926-0	UHF Channel Selector - Models 8115, 17
Knob	52-927-0	UHF Channel Selector - Models 8155, 57, 61, 63, 83, 85, 87
Drum	52-924-0	UHF Channel Indicator - Models 8115, 17
Drum	52-925	UHF Channel Indicator - Models 8155, 57, 61, 63, 83, 85, 87
Cabinet	42-23-0	Model 8154
Cabinet	42-14-0	Model 8114
Cabinet	42-15-0	Model 8115
Cabinet	42-16-0	Model 8116
Cabinet	42-17-0	Model 8117
Cabinet	42-29-0	Model 8155
Cabinet	42-22-0	Model 8156
Cabinet	42-30-0	Model 8157
Cabinet	42-21-0	Model 8158
Cabinet	42-32-0	Model 8160
Cabinet	42-38-0	Model 8161
Cabinet	42-33-0	Model 8162
Cabinet	42-39-0	Model 8163
Cabinet	42-24-0	Model 8182
Cabinet	42-31-0	Model 8183
Cabinet	42-34-0	Model 8184
Cabinet	42-36-0	Model 8185
Cabinet	42-35-0	Model 8186
Cabinet	42-37-0	Model 8187
Cabinet	42-40-0	Model 8188
Pushbutton	52-912-0	Power Tuning - Models 8160, 61, 62, 63, 84, 85, 86, 87, 88
Pushbutton	52-911-0	On-off- Models 8160, 61, 62, 63, 84, 85, 86, 87, 88

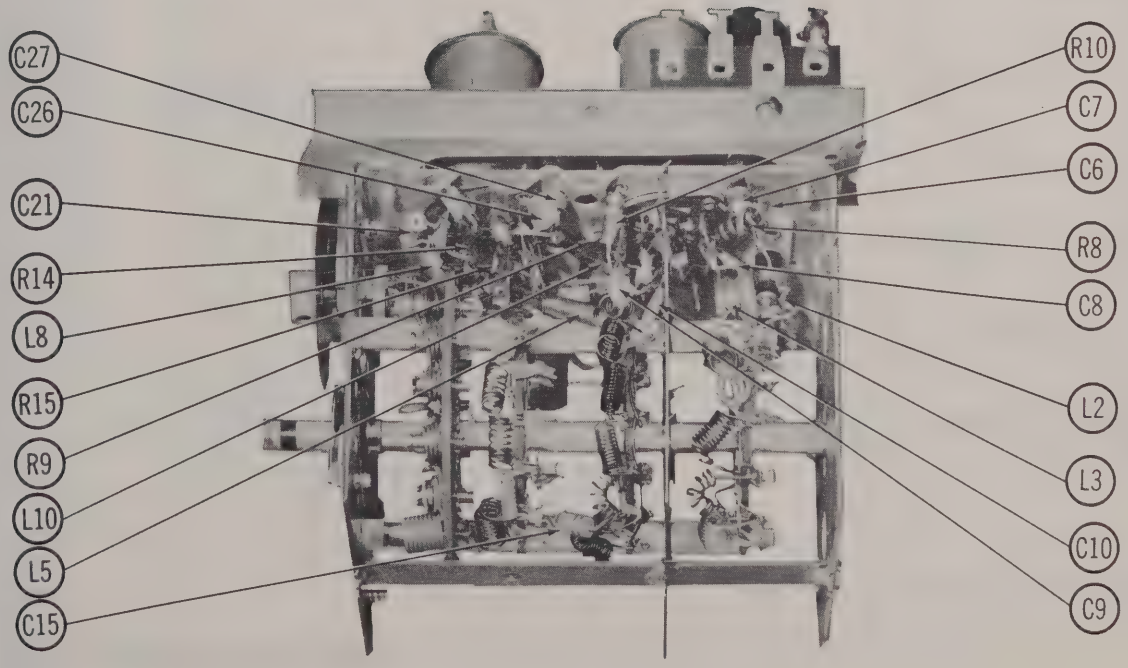
WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

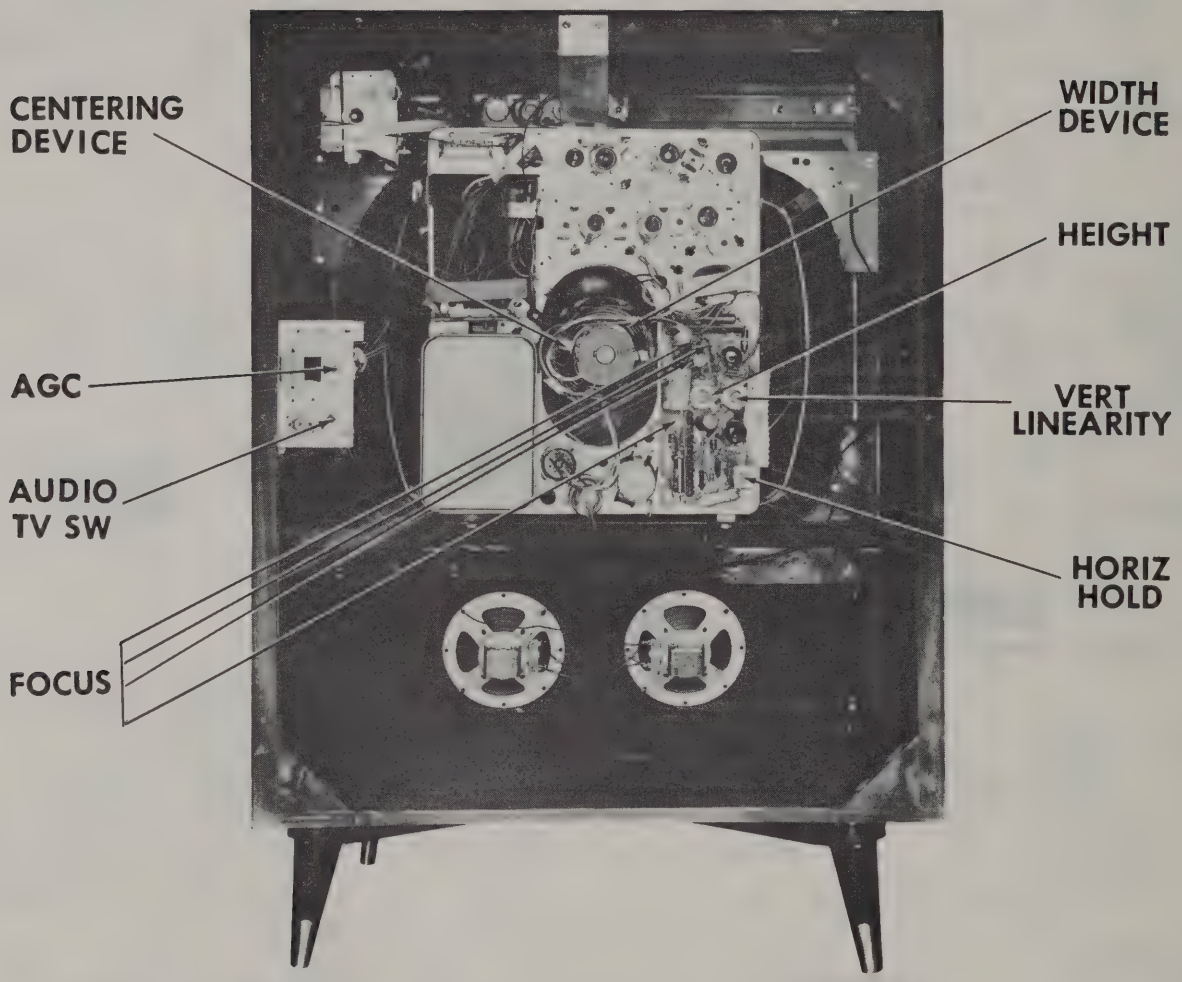
PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Tune in a TV station and adjust the horizontal hold until the picture synchronizes horizontally. If the picture cannot be synced with the horizontal hold, turn the waveform slug (B1) several turns out of the coil form from its original position. Readjust the horizontal hold until the picture synchronizes horizontally.

Connect the vertical amplifier of the scope thru a low capacity probe to point (F). Connect low side to chassis. Retouch the horizontal hold to synchronize the picture.

Adjust the waveform slug (B1) for a waveform similar to Fig. 2 with the sharp peak approximately 10% higher than the broad peak. Keep the picture in sync during this adjustment with the horizontal hold. Remove scope connection and retouch horizontal hold if necessary to synchronize picture horizontally.

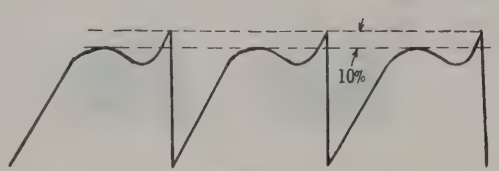


FIG. 2

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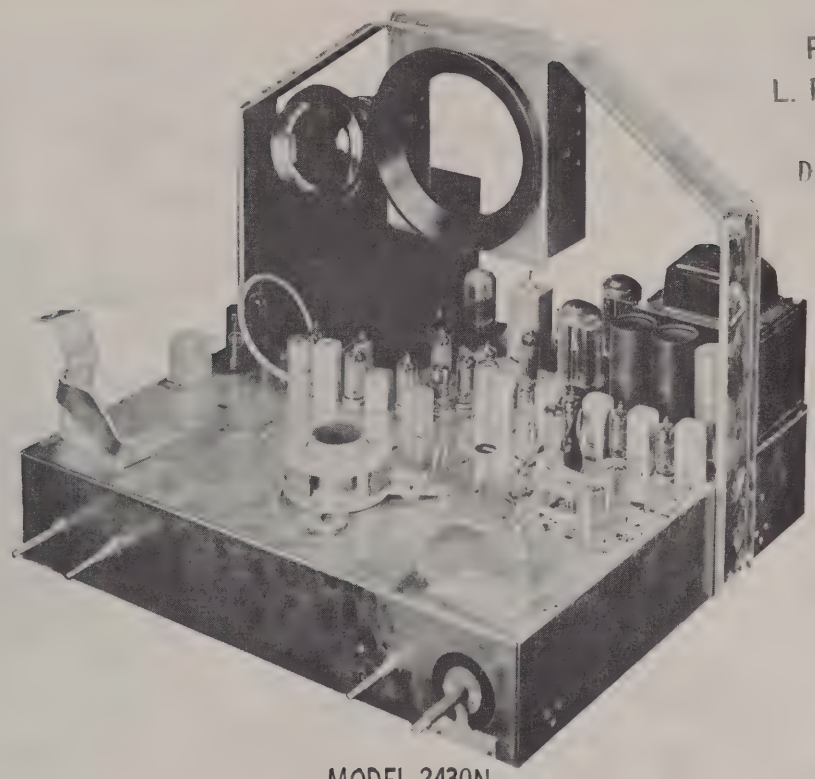


MODEL 2430N

TRADE NAME	Tech-Master Models 1930N, 2430N
MANUFACTURER	Tech-Master Corp., 75 Front Street, Brooklyn, N.Y.
TYPE SET	Television Receiver
TUBES	Thirty
POWER SUPPLY	105-125 Volts AC, 60 Cycle RATING 295 Watts, 2.8 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

SPECIAL ADJUSTMENTS

A. AGC
Observe the picture and advance the AGC control to a point where the picture distorts or a buzz is heard in the sound. Back off from this setting until the picture becomes stable with no noise in the sound.

B. Area
Turn the area control fully clockwise, then counter clockwise approximately 1/4 turn. Adjust picture to lock in with hold controls. If picture jitters, tears,etc. adjust area counter clockwise until stable. Readjust hold controls and check operation on all channels in the area.

B. Focus
The focus may be varied by means of a screw in the focus magnet. Using a non-ferrous screwdriver adjust the screw in or out for best focus.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the discriminator secondary (A13) located on top of chassis.

FUSES

One fuse is used for horizontal sweep circuit protection. (For location, see tube placement chart).

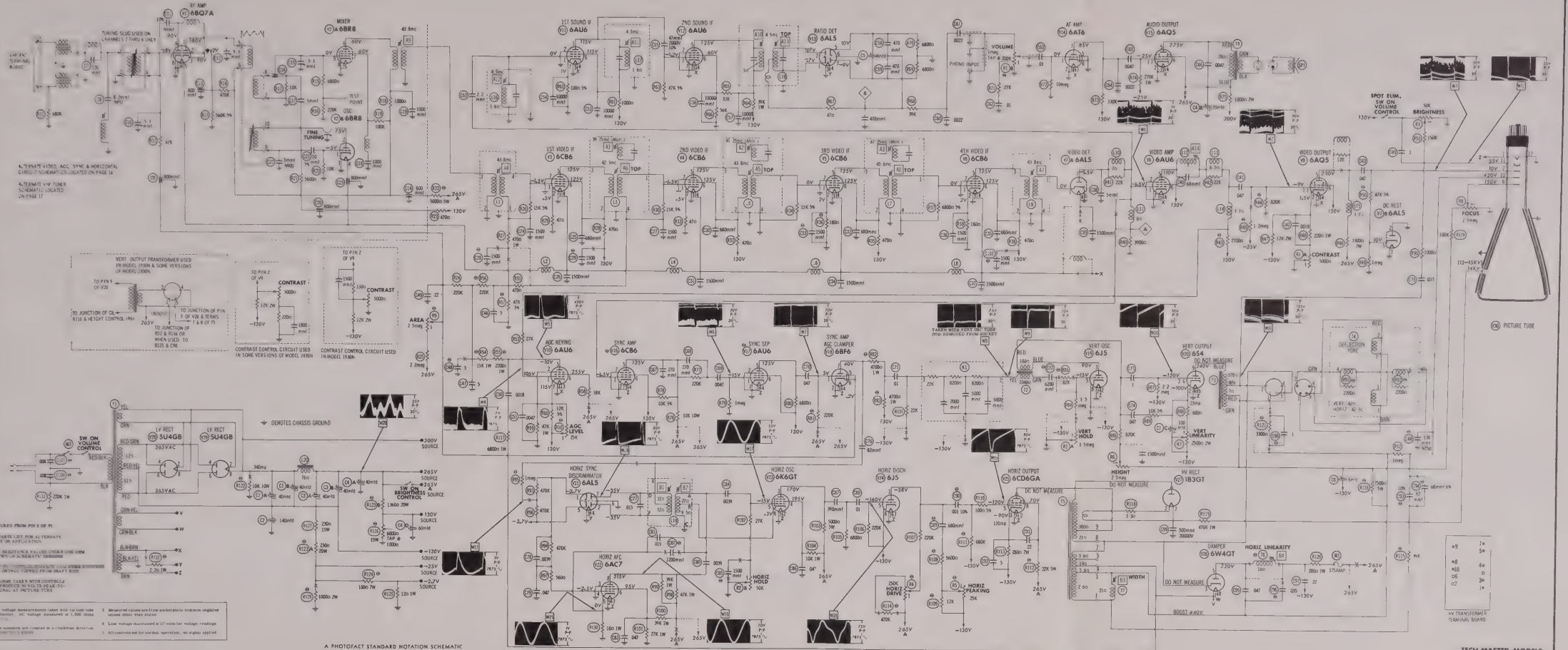
CENTERING

Centering is accomplished mechanically by means of a centering arm. Adjust the arm from side to side, and up and down until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of H352

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America


RF AMP V1 6BQ7A
MIXER V2 6BR8
1ST SOUND IF V11 6AU6
2ND SOUND IF V12 6AU6
RATIO DET V13 6AL5
AF AMP V14 6AT6
AUDIO OUTPUT V15 6AQ5
1ST VIDEO IF V3 6CB6
2ND VIDEO IF V4 6CB6
3RD VIDEO IF V5 6CB6
4TH VIDEO IF V6 6CB6
VIDEO DET V7 6AL5
VIDEO AMP V8 6AU6
VIDEO OUTPUT V9 6AQ5
DC REST V7 6AL5
OSC V7 6BR8
AGC KEYING V10 6AU6
SYNC AMP V16 6CB6
SYNC SEP V17 6AU6
SYNC AMP AGC CLAMPER V18 6BF6
VERT OSC V19 6J5
VERT OUTPUT V20 6S4
HV RECT V21 1B3GT
HORIZ SYNC DISCRIMINATOR V21 6AL5
HORIZ AFC V22 6AC7
HORIZ OSC V23 6K6GT
HORIZ DSCH V24 6J5
HORIZ OUTPUT V25 6CD6GA
DAMPER V26 6W4GT
LV RECT V29 5U4GB
LV RECT V28 5U4GB
PICTURE TUBE V36
TUNING SLUG USED ON CHANNELS 7 THRU 13 ONLY
ALTERNATE VIDEO, AGC, SYNC & HORIZONTAL CIRCUIT SCHEMATICS LOCATED ON PAGE 16
ALTERNATE VHF TUNER SCHEMATIC LOCATED ON PAGE 17
VOLUME
PHONO INPUT
SPOT ELIM. SW ON VOLUME CONTROL
BRIGHTNESS
FOCUS
CONTRAST
HEIGHT
VERT LINEARITY
VERT HOLD
HORIZ LINEARITY
WIDTH
HORIZ PEAKING
HORIZ HOLD
HORIZ DRIVE
AREA
SW ON BRIGHTNESS CONTROL
SW ON VOLUME CONTROL
DEFLECTION YOKE
HV TRANSFORMER TERMINAL BOARD
DENOTES CHASSIS GROUND
DO NOT MEASURE
BOOST 440V
VERT OUTPUT TRANSFORMER USED IN MODEL 1930N & SOME VERSIONS OF MODEL 2430N
CONTRAST CONTROL CIRCUIT USED IN SOME VERSIONS OF MODEL 2430N
CONTRAST CONTROL CIRCUIT USED IN MODEL 1930N
TAKEN WITH PICTURE TUBE REMOVED FROM SOCKET
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
◆ MEASURED FROM PIN 3 OF V1.
⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DRAWING
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction viewing socket pins.
3. Measured values are from socket pins to common negative unless other wise stated
4. Line voltage maintained at 117 volts for voltage readings
5. All controls set for normal operation, no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958
TECH-MASTER MODELS 1930N, 2430N

TUBE PLACEMENT CHART

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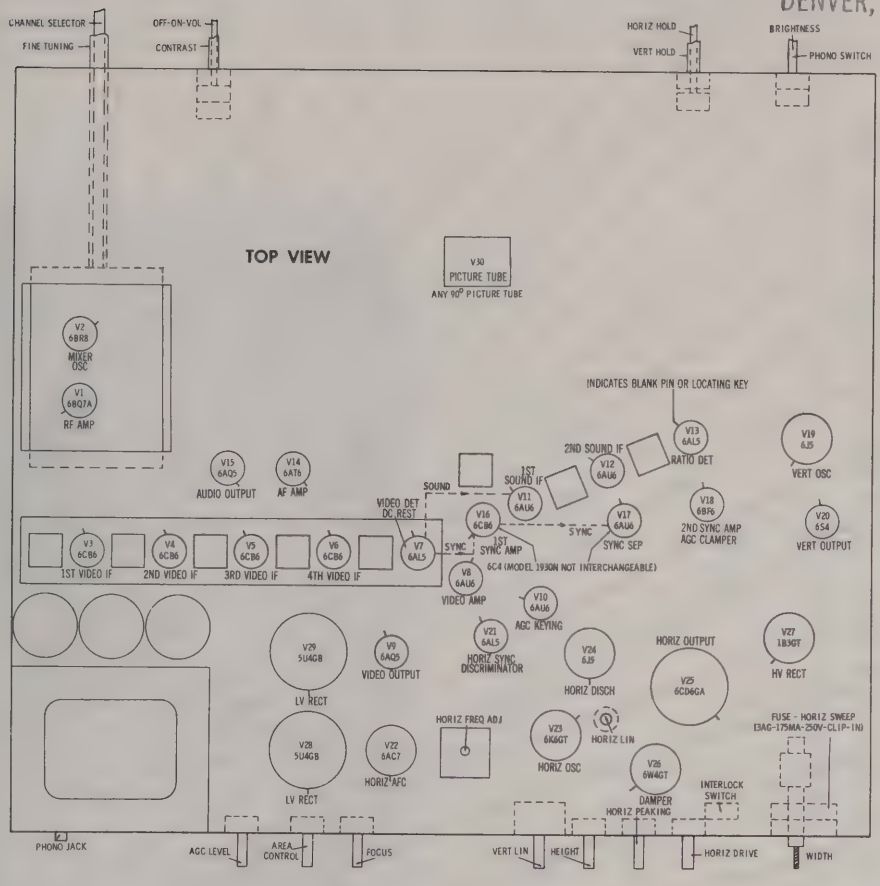

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **V28, V29**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, V6, V7**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V9, V7, V30**
Has pic, no sound - **V11, V12, V13, V14, V15**
Overloaded picture - **V10**

SYNC FAILURE
No vert. sync - **V16, V17, V18**
No horiz. sync - **V16, V17, V18, V21, V22**
No vert. or horiz. sync - **V16, V17, V18**

SWEEP FAILURE
No raster, has sound - **Fuse (M1), V21, V22, V23, V24, V25, V26, V27, V30**
No vertical deflection - **V19, V20**
Poor vert. linearity or foldover - **V19, V20**
Poor horiz. linearity or foldover - **V23, V24, V25, V26**
Narrow picture - **V23, V24, V25, V26, V28, V29**
Vert. off freq. - **V19**
Horiz. off freq. - **V22, V23**

PROPERTY OF
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3924 MEADE ST.

CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

TECH-MASTER MODELS
1930N, 2430N

FOLDER 4

PROPERTY OF -
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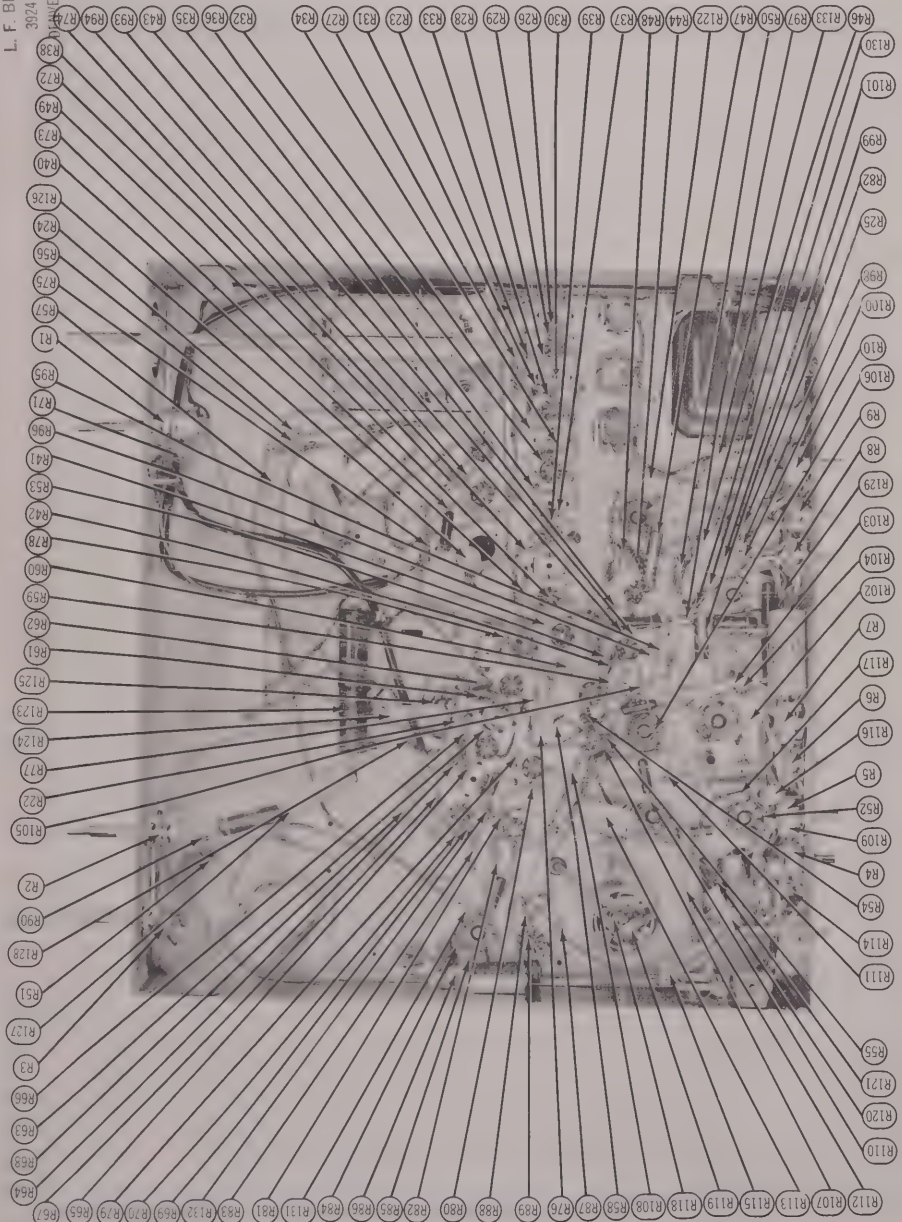
DENVER, COLORADO

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



SET 390 FOLDER 4

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough generator output to provide a usable indication on VTVM.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V2). Low side to chassis.	Not used	39.75MC (Unmod)	Any non-interfering channel	USE VTVM. DC probe thru 10K to point (A). Common to chassis.	A1	Adjust for MINIMUM deflection.
2.	"	"	"	41.25MC	"	"	A2	"
3.	"	"	"	47.25MC	"	"	A3	"
4.	"	"	"	43.8MC	"	"	A4, A5	Adjust for maximum deflection.
5.	"	"	"	42.3MC	"	"	A6	"
6.	"	"	"	43.8MC	"	"	A7	"
7.	"	"	"	45.6MC	"	"	A8	"
8.	"	"	"	43.8MC	"	"	A9	"
9.	"	"	43.5MC (10MC Swp)	39.75MC 41.25MC 41.9MC 45.75MC 47.25MC	"	Vert. Amp. thru 10K to point (A). Low side to chassis.		Check for response similar to Fig. 1 with markers as shown. If necessary, retouch A1 thru A9 for desired response.

SOUND IF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	.005mfd	High side to pin 1 (cathode) of 6AL5 (V7). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to pin 5 (cathode) of 6AL5 (V13) Common to chassis.	A10, A11, A12	Detune A13 by turning in either direction several turns. Adjust A10, A11 and A12 for maximum deflection.
11.	"	"	"	"	DC probe to point (B). Common to chassis.	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

4.5MC TRAP ALIGNMENT

Tune in a TV station and adjust the fine tuning for a grainy pattern in the picture. Adjust A14 for MINIMUM interference in the picture.

OSCILLATOR ALIGNMENT

Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

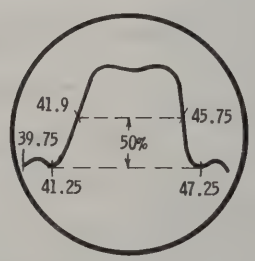
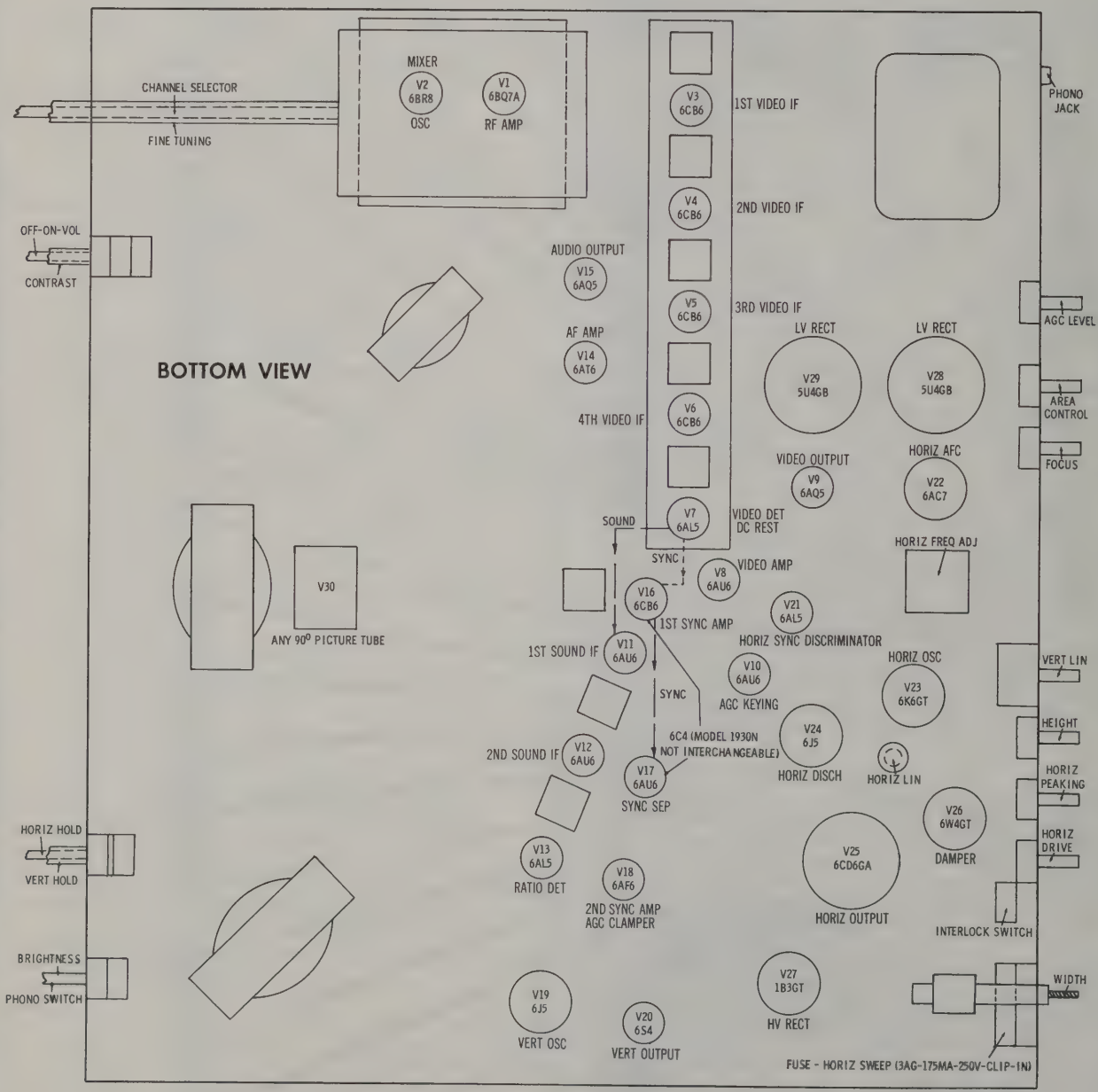


FIG.1

CHASSIS TOP VIEW



TUBE PLACEMENT CHART

RESISTANCE MEASUREMENTS

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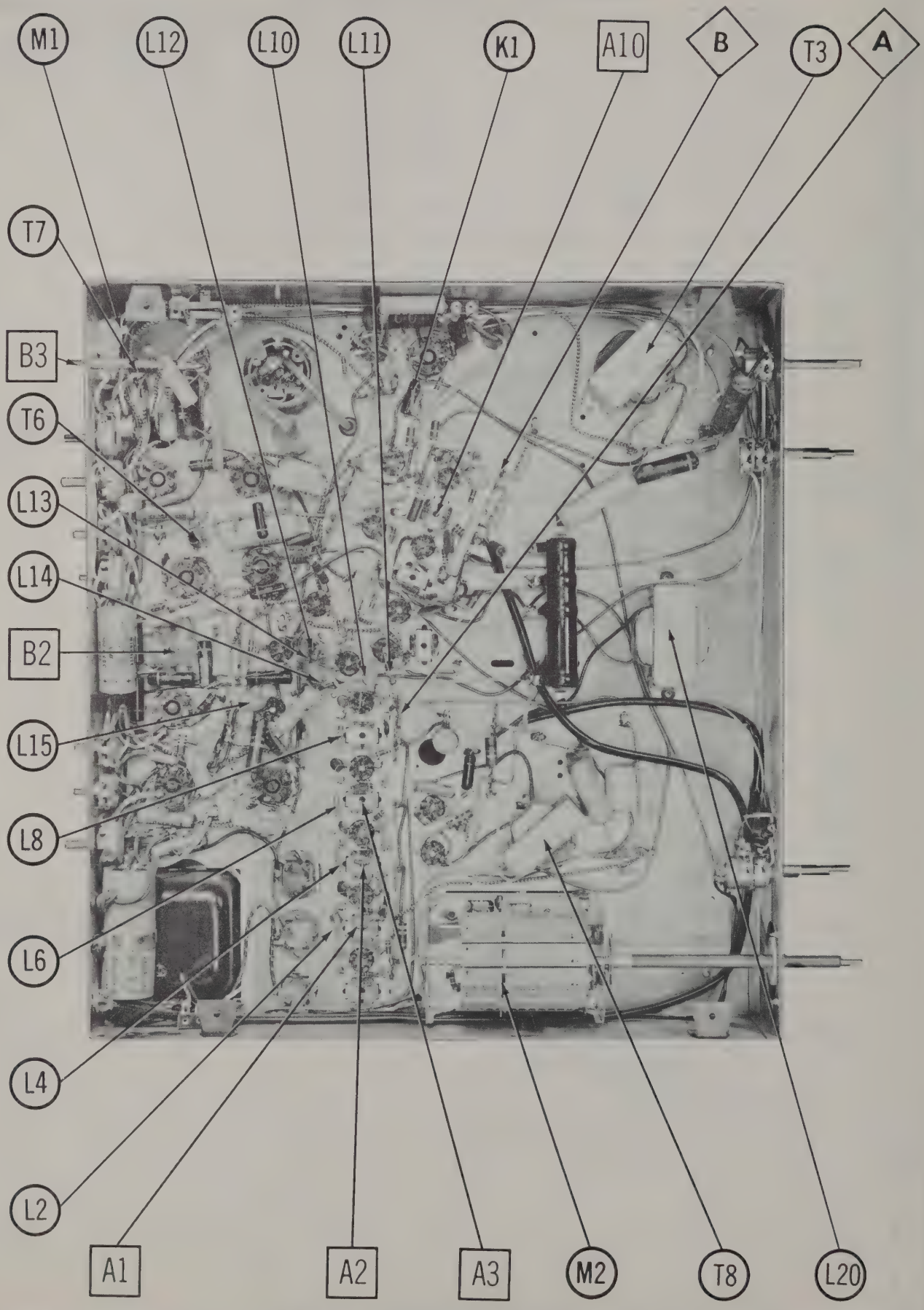
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BQ7A	†5000Ω	230K	INF	0Ω	.1Ω	INF	450K	0Ω	0Ω
V2	6BR8	10K	†5600Ω	0Ω	.1Ω	0Ω	†6000Ω	†100K	0Ω	227K
V3	6CB6	47K	47Ω	0Ω	.1Ω	†1600Ω	†1600Ω	0Ω		
V4	6CB6	47K	47Ω	0Ω	.1Ω	†1600Ω	†1600Ω	0Ω		
V5	6CB6	.1Ω	180Ω	0Ω	.1Ω	†1600Ω	†1600Ω	0Ω		
V6	6CB6	.1Ω	180Ω	0Ω	.1Ω	†1600Ω	†1600Ω	0Ω		
V7	6AL5	.2Ω	0Ω	0Ω	.1Ω	1meg	0Ω	3900Ω		
V8	6AU6	3900Ω	0Ω	0Ω	.1Ω	†3600Ω	†1100Ω	0Ω		
V9	6AQ5	450K	• 500Ω	0Ω	.1Ω	†3300Ω	†1100Ω	450K		
V10	6AU6	†30K	• †7000Ω	.1Ω	0Ω	260K	†18K	• †7000Ω		
V11	6AU6	1.6Ω	0Ω	0Ω	.1Ω	†2100Ω	†2100Ω	100Ω		
V12	6AU6	47K	0Ω	0Ω	.1Ω	†13K	†35K	0Ω		
V13	6AL5	INF	INF	.1Ω	0Ω	6800Ω	0Ω	6800Ω		
V14	6AT6	10meg	0Ω	.1Ω	0Ω	0Ω	0Ω	†330K		
V15	6AQ5	270K	0Ω	0Ω	.1Ω	†1300Ω	†1000Ω	270K		
V16	6CB6	3900Ω	0Ω	0Ω	.1Ω	†5500Ω	†1100Ω	0Ω		
V17	6AU6	1meg	0Ω	0Ω	.1Ω	†7900Ω	†1100Ω	0Ω		
V18	6BF6	†220K	0Ω	0Ω	.1Ω	450K	450K	†10K		
V19	6J5	0Ω	.1Ω	• ‡1.8meg	TP	• 1.9meg	TP	0Ω	0Ω	
V20	6S4	NC	•▲ 750Ω	▲ 2.2meg	0Ω	.1Ω	▲ 2.2meg	NC	NC	‡8000Ω
V21	6AL5	950K	1.5meg	0Ω	.1Ω	12Ω	0Ω	1.5meg		
V22	6AC7	0Ω	0Ω	0Ω	1.3meg	10Ω	†15K	.1Ω	†20K	
V23	6K6GT	NC	.1Ω	†5000Ω	†10K	•50K	TP	0Ω	9.5Ω	
V24	6J5	0Ω	0Ω	• †350K	TP	▲ 220K	NC	.1Ω	▲ 0Ω	
V25	6CD6GA	TP	.1Ω	▲280Ω	NC	▲ 680K	TP	0Ω	†22K	TOP CAP ‡21Ω
V26	6W4GT	TP	TP	¶	NC	†400Ω	TP	‡16Ω	‡16Ω	
V27	1B3GT		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP ‡400Ω
V28	5U4GB	NC	¶	TP	▲12Ω	TP	▲ 11Ω	NC	¶	
V29	5U4GB	TP	¶	NC	▲ 12Ω	NC	▲ 11Ω	NC	¶	
V30	PIX TUBE	1Ω	1meg	PIN 6 • 650K	PIN 10 ‡1meg	PIN 11 • 160K	PIN 12 0Ω			

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 300V SOURCE.
‡ MEASURED FROM PIN 3 OF V26.
▲ MEASURED FROM -130V SOURCE.
NC NO CONNECTION.
TP TIE POINT.



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	6BQ7A	
V2	Mixer-Osc.	6BR8	
V3	1st. Video IF Amp.	6CB6	
V4	2nd. Video IF Amp.	6CB6	
V5	3rd. Video IF Amp.	6CB6	
V6	4th. Video IF Amp.	6CB6	
V7	Video Det.-DC Restorer	6AL5	
V8	Video Amplifier	6AU6	
V9	Video Output	6AQ5	
V10	AGC Keying	6AU6	
V11	1st. Sound IF Amp.	6AU6	
V12	2nd. Sound IF Amp.	6AU6	
V13	Ratio Det.	6AL5	
V14	AF Amplifier	6AT6	
V15	Audio Output	6AQ5	
V16	1st. Sync Amp.	6CB6	Note 1
V17	Sync Separator	6AU6	Note 2
V18	AGC Clamper-2nd. Sync Amp.	6BF6	
V19	Vert. Osc.	6J5	
V20	Vert. Output	6S4	
V21	Horiz. Sync Discriminator	6AL5	
V22	Horiz. AFC	6AC7	
V23	Horiz. Osc.	6K6GT	
V24	Horiz. Discharge	6J5	
V25	Horiz. Output	6CD6GA	
V26	Damper	6W4GT	
V27	HV Rectifier	1B3GT	
V28	LV Rectifier	5U4GB	
V29	LV Rectifier	5U4GB	

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Note 1. In Model 1930N a 6C4 is used as Horiz. Sync Separator. Tubes are NOT interchangeable.
Note 2. In Model 1930N a 6C4 is used as a Vert. Sync Separator. Tubes are NOT interchangeable.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	Tech-Master PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V30	*				* Any 90° picture tube may be used.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Tech-Master PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	450		AFH3-142	C1090	FP375	TMT-141	T-720	TVL-3755
B	■40	450							
C	▲100	50							
C2	140	300		PR1-100	BBRD0334	WS427		S-200	TVA-1575
C3A	▲40	450		AFH3-142	C1090	FP375	TMT-141	T-720	TVL-3755
B	■40	450							
C	▲100	50	①						
C4A	▲40	400		AFH4-93-50	D0177.4	FP448	TMQ-121	Q-040	
B	■20	400			BR2045	TC75	TD-20-450	MTD-4530	
C	▲20	400	①						
D	60	350							
C5	4	50		PRS150V4	BBR4-50	TC30	TD-4-50	MT-0504	TVA-1402
C6	8	500		PRS500V8	BR850	TC82	TD-8-500	MT-5010	TVA-1902

① Sections C3C and C4C are not used.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Tech-Master PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C7	120			NPO-DI 120	TCZ-120	C10T12V	TCO-120	UC-5312	5TCC-T12	
C8	8.2			NPO-DI 8.2		C10V82C	TCO-8.2			NPO
C9	800				829-3		3115-E	CT565A		
C10	.5-3						TCO-3			10%
C11	3			NPO-DI 3	829-3		3115-E	CT565A		
C12	.5-3									
C13	800									
C14	800				829-3		3115-E	CT565A		
C15	.5-3									
C16					TCZ-R5		TCO-.5			
C17	.5			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C18	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C19	1000									
C20	800				TCZ-4R7		TCO-5			5%
C21	10									N900
C22	5									
C23	800			BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	
C24	1500			BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	5GA-T68	
C25	680			BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	
C26	1500			BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	
C27	1500			BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	①
C28	1500			BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	①
C29	1500			BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	
C30	680			BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	5GA-T68	
C31	1500			BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	
C32	680			BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	5GA-T68	
C33	1500			BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	②
C34	1500			BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	
C35	680			BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	5GA-T68	
C36	1500			BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	
C37	1500			BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	
C38	5			SI 5	D6-050	LT6V5	GP-5	ZT-555	5GA-V5	
C39	1500			BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	
C40	68			SI 68	D6-680	LT6Q68	GP-68	UC-5468	5GA-Q68	
C41	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C42	.0018	600		P688N-002	D6-182	CUB6D2	GP-1800	GEM-622	6TM-D2	
C43	.047	400		P488N-047	DF-503	CUB4S47			4TM-S47	
C44	130									N750②
C45	.1	600		P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C46	.5	100		P288N-5		CUB2P5		GEM-205	2TM-P5	
C47	.5	100		P288N-5		CUB2P5		GEM-205	2TM-P5	
C48	.5	100		P288N-5		CUB2P5		GEM-205	2TM-P5	①
C49	.22	200		P288N-22		CUB2P22		GEM-2022	2TM-P22	
C50	.0018	600		P688N-002	D6-182	CUB6D2	GP-1800	GEM-622	6TM-D2	
C51	.0047	400		P488N-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C52	2.2			NPO-SI 2.2	TCZ-2R2	CTA6V22C	TCO-2.2		5TCCB-V22	
C53	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C54	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C55	47	2000								10%

CAPACITORS (cont)

ITEM No.	RATING CAP	RATING VOLT	Tech-Master PART No.	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C86	10000			BPD-01	DD-103	BYAM01	ED-01	DC5U	5HK-S1	
C87	30000			BPD-03	DD-103	BYAM03	ED-01	DC5U	5HK-S1	
C88	470			BPD-00047	DD-471	BYAU0747	ED-470	UC-5347	5GA-T47	
C89	470			BPD-00047	DD-471	BYAU0747	ED-470	UC-5347	5GA-T47	
C90	.0033	600		P668N-0033	DS-222	CUB5D22	GP-2200	GEM-6222	RTM-D22	
C91	.0033	600		P668N-0033	DS-222	CUB5D22	GP-2200	GEM-6222	RTM-D22	
C92	.01	400		P488N-01	DS-103	CUB4D	GP-10000	GEM-4U	4TM-S1	
C93	.01	400		P488N-01	DS-103	CUB4D	GP-10000	GEM-4U	4TM-S1	
C94	.0022	600		P668N-0022	DS-222	CUB5D22	GP-2200	GEM-6222	RTM-D22	
C95	.0047	400		P488N-0047	DS-472	CUB4D47	GP-4700	GEM-6247	RTM-D47	
C96	.0047	600		P668N-0047	DS-472	CUB5D47	GP-4700	GEM-6247	RTM-D47	
C97	370			BPD-00037	DD-371	LUB737	ED-370	UC-5337	5GA-T37	
C98	370			BPD-00037	DD-371	LUB737	ED-370	UC-5337	5GA-T37	
C99	.0047	400		P488N-0047	DS-472	CUB4D47	GP-4700	GEM-6247	RTM-D47	
C70	.047	400		P488N-047	DF-503	CUB4D47		GEM-6147	4TM-S47	
C71	.01	400		P488N-01	DS-103	CUB4D	GP-10000	GEM-4U	4TM-S1	
C72	6300			1467-0082		1CB1D82	CY30C8323		LFM-382	①
C73	.047	600		P668N-047	DF-504	CUB5D47		GEM-6U1	6TM-P1	
C74	.047	600		P668N-047	DF-503	CUB5D47		GEM-6147	6TM-S47	
C75	.033	600		P668N-033	DF-503	CUB5D33		GEM-6133	6TM-S33	
C76	83			DT 83	UD-830	LUN2D	ED-82		5GA-Q82	
C77	.015	400		P488N-015	DS6-153	CUB6D15	ED-015	GEM-4115	4TM-S15	
C78	.0039	600		P668N-004	DD-392	CUB5D4	GP-4000	GEM-634	RTM-D4	
C79	.047	400		P488N-047	DF-503	CUB4D47		GEM-6147	4TM-S47	
C80	.0039	600		P668N-004	DD-392	CUB5D4	GP-4000	GEM-634	RTM-D4	
C81	.015	400		P488N-015	DS6-153	CUB6D15	ED-015	GEM-4115	4TM-S15	
C82	1200			BI-1200	DE-122	LTB12D	GP-1200	UC-5123	5GA-U23	②
C83	.047	400		P488N-047	DF-503	CUB4D47		GEM-6147	4TM-S47	
C84	.0039	600		P668N-004	DD-392	CUB5D4	GP-4000	GEM-634	RTM-D4	
C85	3300			BPD-0033	DD-332	BYAU0D33	ED-3300	DC5J3	5HK-D33	②
C66	.047	400		P488N-047	DF-503	CUB4D47		GEM-6147	4TM-S47	
C67	390			1468-00039	DE-391	5WS139	ED-390	UC-5339	LFM-339	
C68	.01	400		P488N-01	DS-103	CUB4D	GP-10000	GEM-4U	4TM-S1	
C69	680			1467-00068	DE-681	1WS768	ED-680	UC-5368	LFM-368	②
C90	.001	600								10% ③
C91	33	400		P488N-33		CUB4P33		GEM-6022	4TM-P33	
C92	5	100		P283N-5		CUB2P5		GEM-205	2TM-P5	
C93	83			1469-000083	DE-830	2UR5Q83	CY10C830K		MS-483	②
C94	68			1469-000068	TCZ-68	2UR5Q68	CY10C680J		MS-468	①
C95	.047	600		P668N-047	DF-503	CUB5D47		GEM-6147	6TM-S47	
C96	033	600		P668N-033	DD-303	CUB5D33		GEM-6133	6TM-S33	①
C97	33	600		P668N-33		CUB5P33		GEM-6022	6TM-P33	
C98	1	600		P668N-1	DF-104	CUB5P1		GEM-6U1	6TM-P1	
C99	500	30000		UV-502	TV-20	MMU300T5	413-1	HV30035A	201X-T5	
C100	008	800		P108N-008				GEM-1628	MD-D8	④
C101	008	800		P108N-008				GEM-1628	MD-D8	④
C102	1500			BPD-0015	DD-153	BYAU0D15	ED-1500	DC5J15	5HK-D15	①

① Not used in some versions
② Not used in Model 1930N.
③ Model 1930N uses 470mmf in this application
Model 2430N uses 330mmf in this application.
Model 1930N uses 680mmf in this application.
④ Some versions may use 6mfd in this application.

CONTROLS

ITEM No.	RATING RESIST ANCE	RATING WATTS	Tech-Master PART No.	REPLACEMENT DATA CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	5000Ω			F1-51				Contrast
B	1meg			R3-57			** UE27B0B	Volume-Tap ② 200K
C	Switch			KS-6				AC & Spot Eliminator-Note 1
R2A	1.5meg			F1-64				Vert. Hold
B	50K			R3-29			** UE27B3	Horiz. Hold
R3A	50K			B-51	A47-50K-6	Q31-133	U36	Brightness
B	Shaft			Not Req.	F8-3	Not Req.	Not Req.	
C	Switch			KS-1 or KS-4 *	SWB-13	76-4	U8-36	Phase-TV
R4A	250K			A47-250K-8	Q31-130		U46	Horiz. Drive - Note 3
B	Shaft			AK-1	F83-1/4		Not Req.	
R5A	35K			B-36	A47-35K-6	Q31-120	U38	Horiz. Peaking - Note 3
B	Shaft			Not Req.	B8-3	Not Req.	Not Req.	
R6A	2.5meg			AB-83	A47-2.5meg -6	Q31-329	U355	Height
B	Shaft			AK-1	F83-1/4	SQ	Not Req.	
R7A	3500Ω	3(WW)		WW-352	442-3500	WP82500	R3500L	Vert. Lin.
B	Shaft			Not Req.	F83-1/4	Not Req.	Not Req.	
R8A	2.5meg			AB-83	A47-2.5meg -8	Q31-329	U355	Focus
B	Shaft			AK-1	F83-1/4	SQ	Not Req.	
R9A	1.5meg			AB-83	A47-1.5meg-8	Q31-329	U355	Area - Note 2
B	Shaft			AK-1	F83-1/4	SQ	Not Req.	
R10A	35K			B-36	A47-35K-8	Q31-130	U38	AGC Level - Note 2
B	Shaft			Not Req.	B8-3	Not Req.	Not Req.	

* Concentrittl Equivalent K-3 Kit, Base Elements & Shafts B17-114, P1-118 (Panel) B13-137, R1-305 (Rear)
** STA-LOC Equivalent FD83R, OF1963, RU1872S, BB125, UB-42.
■ Concentrittl Equivalent K-3 Kit, Base Elements & Shafts B11-138, P1-118 (Panel) B11-133, R1-305 (Rear)
■■ STA-LOC Equivalent FD65R, OF1962, RU843, BB125.
* Use KS-1 on red label control only.
Note 1. In Model 1930N R1C is a DPST switch for AC only.
Note 2. Not used in Model 1930N.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Tech-Master PART No.	NOTES
R11	680K			
R12	47K			
R13	560K 5%			
R14	470K			
R15	6800Ω			
R16	220K			
R17	10K			
R18	1000Ω			
R19	100K			
R20	10K			
R21	56000Ω			
R22	4700Ω	5		Note 1
R24	220K			

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	Tech-Master PART No.	NOTES
R25	2.2meg			
R26	15K 5%			
R27	470Ω	1		
R28	470Ω			
R29	47Ω			
R30	15K 5%			
R31	470Ω			
R32	470Ω			
R33	47Ω			
R34	15K 5%			
R35	470Ω			Note 3
R36	180Ω			
R37	68000 5%			
R38	470Ω			
R39	180Ω			
R40	3900Ω			
R41	33K			
R42	33K			
R43	2700Ω			Note 3
R44	330K			Note 3
R45	1.5meg			Note 3
R46	2500Ω	T		
R47	12K	2		
R48	220Ω	1		
R49	1meg			
R50	47K 5%			Note 6
R51	150K			
R52	1meg			
R53	27K	1		Note 7
R54	18K	1		Note 7
R55	2200Ω	1		Note 7
R56	330K			Note 8
R57	47K 5%			Note 9
R58	18K			
R59	47K	1		
R60	15K 5%			
R61	470K			
R62	39K	1		
R63	4700Ω	1		Note 11
R64	1.5meg			
R65	82K			Note 5
R66	82K			
R67	2.2meg			
R68	680Ω			
R69	10K 5%			
R90	1000Ω			
R91	2500Ω			Note 13
R92	2200Ω			
R93	470K			
R94	470K			
R95	1meg			Note 5
R96	470K			
R97	680Ω			
R98	47K	1		
R99	39K	1		
R100	39K	1		
R101	39K	1		
R102	27K			
R103	5000Ω	5		
R104	10K	1		
R105	680Ω			
R106	220K			
R107	220K			
R108	680Ω			Note 13
R109	12K			Note 5
R110	100Ω 5%			
R111	680K			Note 14
R112	33K	5		Note 15
R113	180Ω	7		
R114	470K			Note 5
R115	39K			Note 5
R116	7500Ω	8		Note 16
R117	680Ω	1		
R118	5.3Ω			
R119	470K	1		
R120	180Ω	7		
R121	3300Ω			Note 17
R122	10K	10		Note 5
R123 ▲	330Ω	30		Note 18
■	1350Ω	30		Note 19
R124	100Ω	7		Note 19
R125	1Ω	1		
R126	6000Ω	15		Note 20
R127	33Ω	15		
R128	100Ω	3		Note 5
R129	100K			
R130	10Ω	1		
R131	22K			
R132	2.2Ω	1		Note 5
R133	120K	1		

Note 1. Some versions may use a 470Ω, 1W in this application.
Note 2. Model 1930N uses 47Ω in this application.
Note 3. Model 1930N uses a 330Ω in this application.
Note 4. Model 1930N uses a 1meg in this application.
Note 5. Not used in Model 1930N.
Note 6. Model 1930N uses a 10K in this application.
Note 7. In some versions of Model 2430N, R54 and R55 are a single 18K, 1W. In Model 1930N a single 56K, 1W is used.
Note 8. Model 1930N uses a 100K in this application.
Note 9. Model 1930N uses a 56K in this application.
Note 10. Model 1930N uses a 270K in this application.
Note 11. Model 1930N uses a 10K, 1W in this application.
Note 12. Some versions may use a 560Ω in this application.
Note 13. Model 1930N uses a 22K in this application.
Note 14. Model 1930N uses a 330K in this application.
Note 15. Some versions may use a 25K, 6W in this application.
Note 16. Model 1930N uses a 10K, 5W in this application.
Note 17. Not used in some versions.
Note 18. Model 1930N uses a 250Ω, 30W and 2360Ω, 30W in this application.
Note 19. Some versions may use a 82Ω, 7W in this application.
Note 20. Tapped ② 1000Ω. Some versions may use a 6800Ω, 18 W in this application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	Tech-Master PART No.	REPLACEMENT DATA Hallicrafters PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ 2.8A	720VCT @ 340A	5V @ 8A	6.3V @ 2.3A SEC. 4 12.6VCT @ 2A	TP-147A					

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	Tech-Master PART No.	REPLACEMENT DATA Hallicrafters PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert. Osc.		B670A	A-4003	V402	A-8133	36A04	A-97Y	
T3	Vert. Output		2280Ω ① ②	A-3623 ③ ④	V103 ② ③	A-8146	26S73	A-118X	
T4A	Yoke-Horiz. (30MH)		LD-230P						
B	(90°)-Vert. (48MH)								
T5	Horiz. Output		T-2572					D-95 *	
	Linearity Coil		L5U0 ③		MWC-9 ③	30UH13 ③	WC-8	WC-33	WLC-5
	(0.7-95MH)								
T7	Width Coil (3.3-195MH)			R7800 ③ ⑤	MWC-11	30UH6	WC-18	WC-18 ⑤	WLC-8

① Use 8 to 1 turns ratio.
② Connect as autoformer.
③ Drill new mounting hole(s).
④ Not used in some versions.
⑤ Enlarge mounting hole.
⑥ Use terminals #1 and #2

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Hallicrafters Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
9						5
8						3
7						3
4						A+
3						2
1						1
Damper Width Coil Across	3 & 1					2 & 1
Vertical Yoke						T

① Connect "A-" to ground.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	Tech-Master PART No.	REPLACEMENT DATA Hallicrafters PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T8	6700Ω	3-4Ω		XU13	A-3030 ①	AU-506	A-3878 ①	26S46 ①	B-8X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA Tech-Master PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	12"	PM	3-4Ω		12A8A	

COILS (RF-IF)

ITEM No.	USE	Tech-Master PART No.	REPLACEMENT DATA Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	1st. Video IF		17-5004	TV-136	6234		
L2	Fil. Choke		19-1000	BC-581	4803		1.1 Microhenries
L3	2nd. Video IF						Includes 39.75MC Trap
L4	Fil. Choke		19-1000	BC-581	4803		1.1 Microhenries
L5	3rd. Video IF		17-5003	TV-137	6233		Includes 41.25MC Trap
L6	Fil. Choke		19-1000	BC-581	4803		1.1 Microhenries
L7	4th. Video IF		17-5005	TV-138	6233		Includes 47.25MC Trap
L8	Fil. Choke		19-1000	BC-581	4803		1.1 Microhenries
L9	5th. Video IF		17-5004	TV-136	6234		
L10	Series Peaking Coil		19-3125	TV-197	6153	VP-4	120 Microhenries
L11	Shunt Peaking Coil		19-3250	TV-198	6181	VP-5	250 Microhenries
L12	4.5MC Trap		20-1004 ▲	TV-183 ▲	6169 *A	SP-3 A	
L13	Series Peaking Coil		19-3125	TV-197	6153	VP-4	120 Microhenries
L14	Shunt Peaking Coil		19-3093	TV-181	6177	VP-3	93 Microhenries
L15	Shunt Peaking Coil		19-3093	TV-181	6177	VP-3	93 Microhenries
L16	1st. Sound IF						
L17	2nd. Sound IF						
L18	Ratio Det.		17-3497	TV-118	6206	SD-4	

* Disregard tap
▲ Drill new mounting hole

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	Tech-Master PART No.	REPLACEMENT DATA Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	NOTES
L19	640 CT	37.5Ω *		TV-160	6194	H-101	HH-1	* Tapped ② 9.5Ω	

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE @ CURRENT 1000 ^Ω)	Tech-Master PART No.	REPLACEMENT DATA Hallicrafters PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L20	350A	78Ω	3.3 Hy.		CH317	C-3996	C-3534 ①	26C35 ①	C-17X

① Drill new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Tech-Master PART No.	REPLACEMENT DATA	
K1	Vert. Integrator	4000mmf, 5000mmf, 5000mmf, 22K, 6200Ω, 6200Ω		Aerovox	PA-110
				Centralab	PC-104
				Cornell-Dubilier	1S7M8
				Erie	1406-01
				Sprague	V-1

FUSES

ITEM No.	TYPE	RATING	Tech-Master PART No. FUSE	Tech-Master PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
MG	3AG	.175A 250V			313.175 (3AG-.175A-250V)	357001	AGC 175/1000	4405

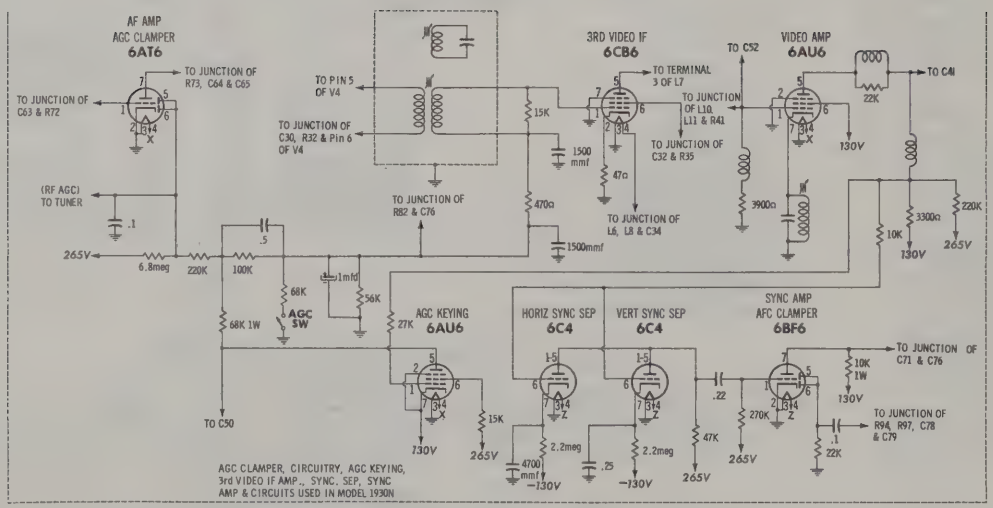
PARTS LIST AND DESCRIPTIONS (Continued)

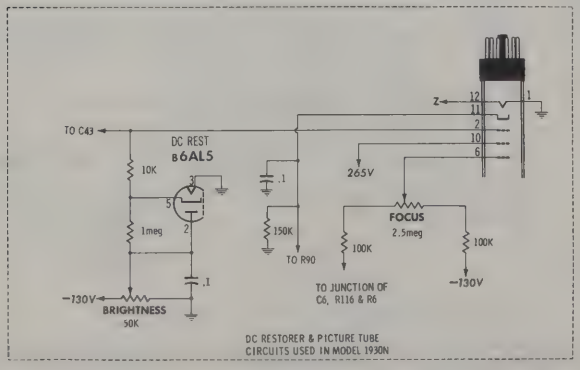
MISCELLANEOUS

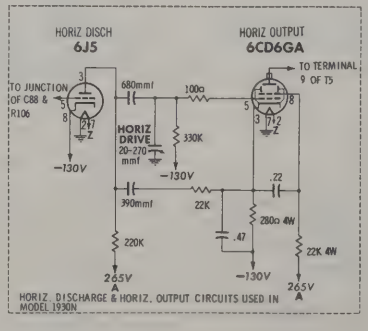
ITEM No.	PART NAME	Tech-Master PART No.	NOTES
M2	Tuner	TV-410	VHF
	Tuner		VHF
M3	Switch		Safety Interlock (SPST- Spring action type)

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor)
	8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors
	8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor
	8485 (Round) - 5 Conductor
	8488 (Round) - 8 Conductor







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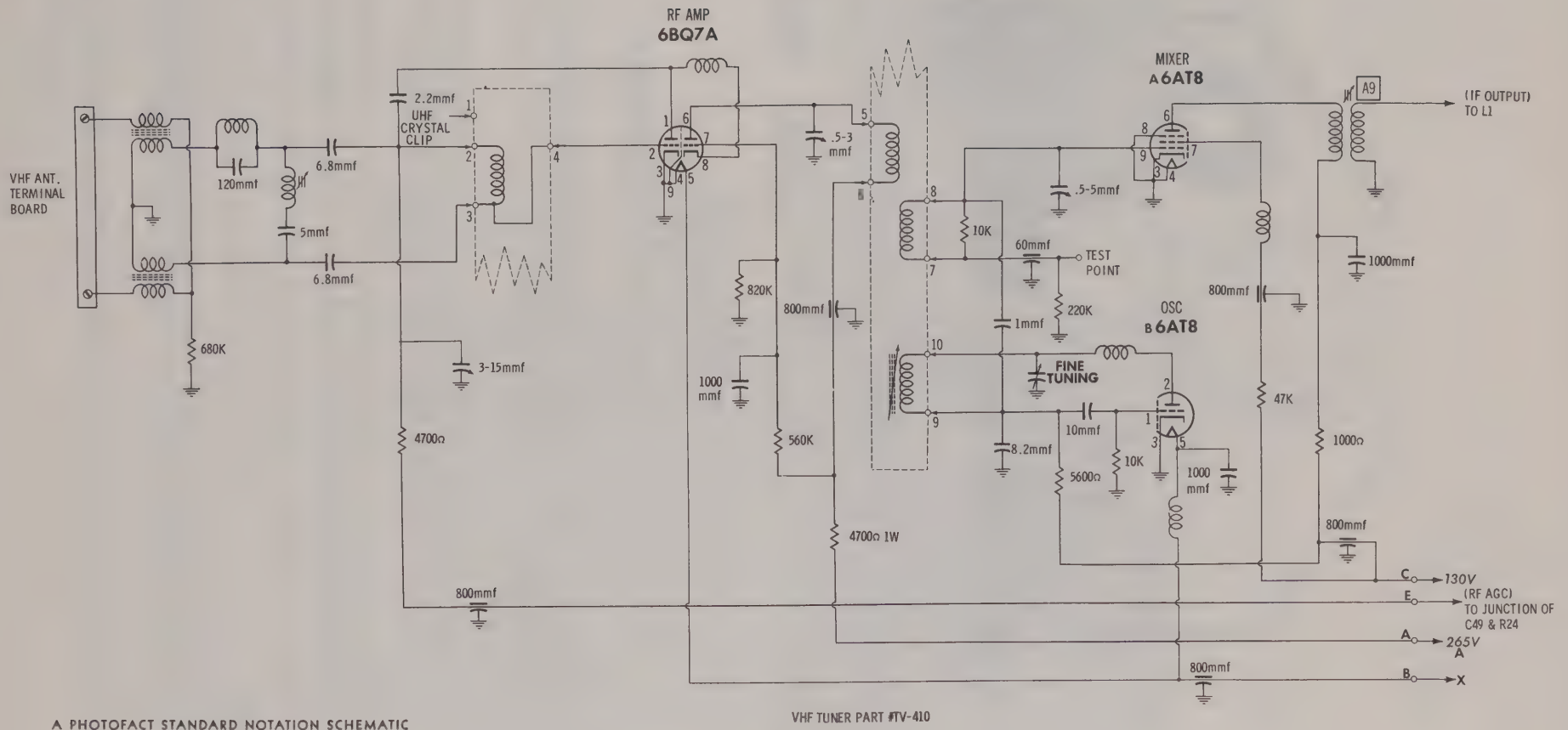
Howard W. Sams & Co., Inc. 1958

ALTERNATE VIDEO, AGC, SYNC & HORIZ CIRCUITS

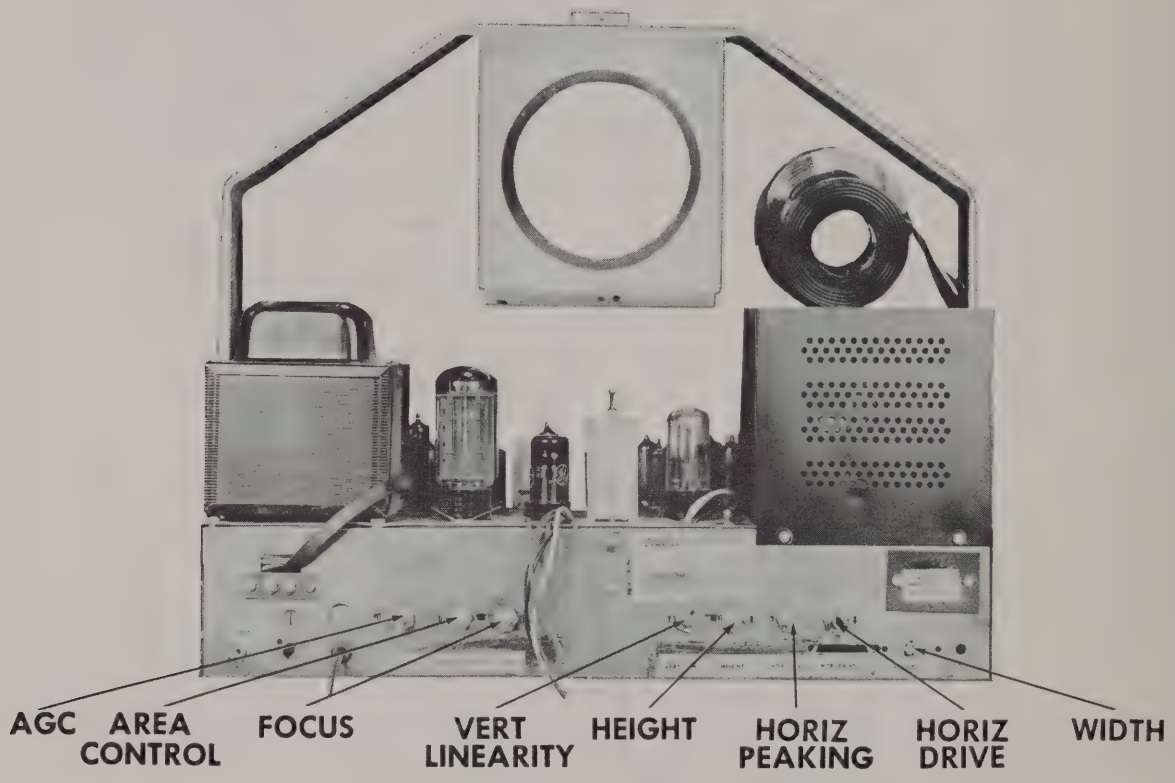


A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

VHF TUNER PART #TV-410

ALTERNATE TUNER SCHEMATIC

TECH-MASTER MODELS
1930N, 2430N



CHASSIS—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR ALIGNMENT CHECK

While receiving a television signal turn the horizontal hold control fully counter clockwise. Remove the picture momentarily by turning the contrast control fully counter clockwise and return it to its normal operating position. The picture should pull back into synchronization.

Now turn the horizontal hold control fully clockwise. Remove the picture momentarily by turning the contrast control fully counter clockwise and then return to its normal operating position. The picture should pull back into synchronization.

If receiver synchronizes properly under these checks it is not necessary to align the horizontal oscillator. However, if the picture is not normal or stable, the horizontal oscillator must be aligned.

SLIGHT RETOUCH ALIGNMENT

If the receiver failed in the above check at either extreme of the hold control, it may be possible to align the horizontal oscillator by making SLIGHT adjustments.

Tune in a TV station and adjust fine tuning for best sound quality. Adjust vertical hold control to vertically synchronize the picture. Adjust the contrast controls to SLIGHTLY less than normal. Turn the horizontal hold control to the extreme position in which the oscillator falls out of synchronization. Momentarily remove the signal. Adjust B3 until the oscillator pulls into synchroniation. Check hold and pull-in as outlined above.

COMPLETE ALIGNMENT

Tune in a TV station for the best sound quality. Adjust vertical hold control to vertically synchronize the picture. Adjust the contrast control to SLIGHTLY less than normal.

Adjust B1 until the blanking bar, which may appear in the picture, moves to the right and off the raster. If ripples occur in the raster turn B1 in a clockwise direction until the unstable condition is removed. The length of this adjustment screw in its correct position is usually about 1/2 inch beyond the bushing.

Turn the horizontal hold control fully counter clockwise and adjust B2 clockwise until picture fails to synchronize. Now slowly turn B2 counter clockwise to the point where the picture synchronizes. Readjust B1 so that the left side of the picture is close to the left side of the raster but does not fold over.

Turn the horizontal hold control fully clockwise. The right side of the picture should be close to the right side of the raster, but should not fold over. If it does, readjust B1.

Momentarily remove the signal. When signal is restored, the picture should fall into synchronization. If it does not, turn B2 counter clockwise until picture falls into synchronization.

Turn horizontal hold control fully counter clockwise. Picture should fall back into synchronization after momentary removal of the signal.

If the picture fails to synchronize after momentary removal of the signal at both extremes of the horizontal hold control, there may be insufficient pull-in range. However, if picture will pull in thru 3/4 of the hold control range, operation should be satisfactory as excessive pull-in is objectionable. Excessive pull-in makes the control circuits more sensitive which may result in their being triggered by noise pulses. Also the vertical synchronizing and equalizing pulses may cause a bend in the upper part of the picture.

HORIZONTAL LINEARITY ADJUSTMENTS

Turn the horizontal drive control clockwise as far as possible without crowding the right half of the picture. Adjust the width slug (B3) until the picture is SLIGHTLY wider than necessary to fill the mask horizontally. Adjust the horizontal linearity slug (B4) until the picture is symmetrical from left to right.

Since both width and horizontal linearity are effected by the drive control, it may be necessary to readjust it to obtain optimum linearity with proper width.

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RF TUNER-BOTTOM VIEW

PHOTOFACT* Folder

COLLARO MODEL
"Conquest"

COLLARO MODEL
"Conquest"

COLLARO MODEL
"Conquest"

GENERAL INFORMATION

The "Collaro Conquest" Record Changer is designed to play 16 2/3 RPM, 33 1/3 RPM, 45 RPM and 78 RPM records of standard commercial dimensions.

This Changer will automatically play and changes records and shut off after the last record has been played. There is provision for Manual play at all speeds and for all record sizes.

The tripping method used is the velocity trip.

Connect this changer to an outlet supplying 110-120 Volts, 60 cycle AC only.

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DENVER, COLORADO

Distributed In U.S. by:

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650 Halstead Avenue
Mamaroneck, New York

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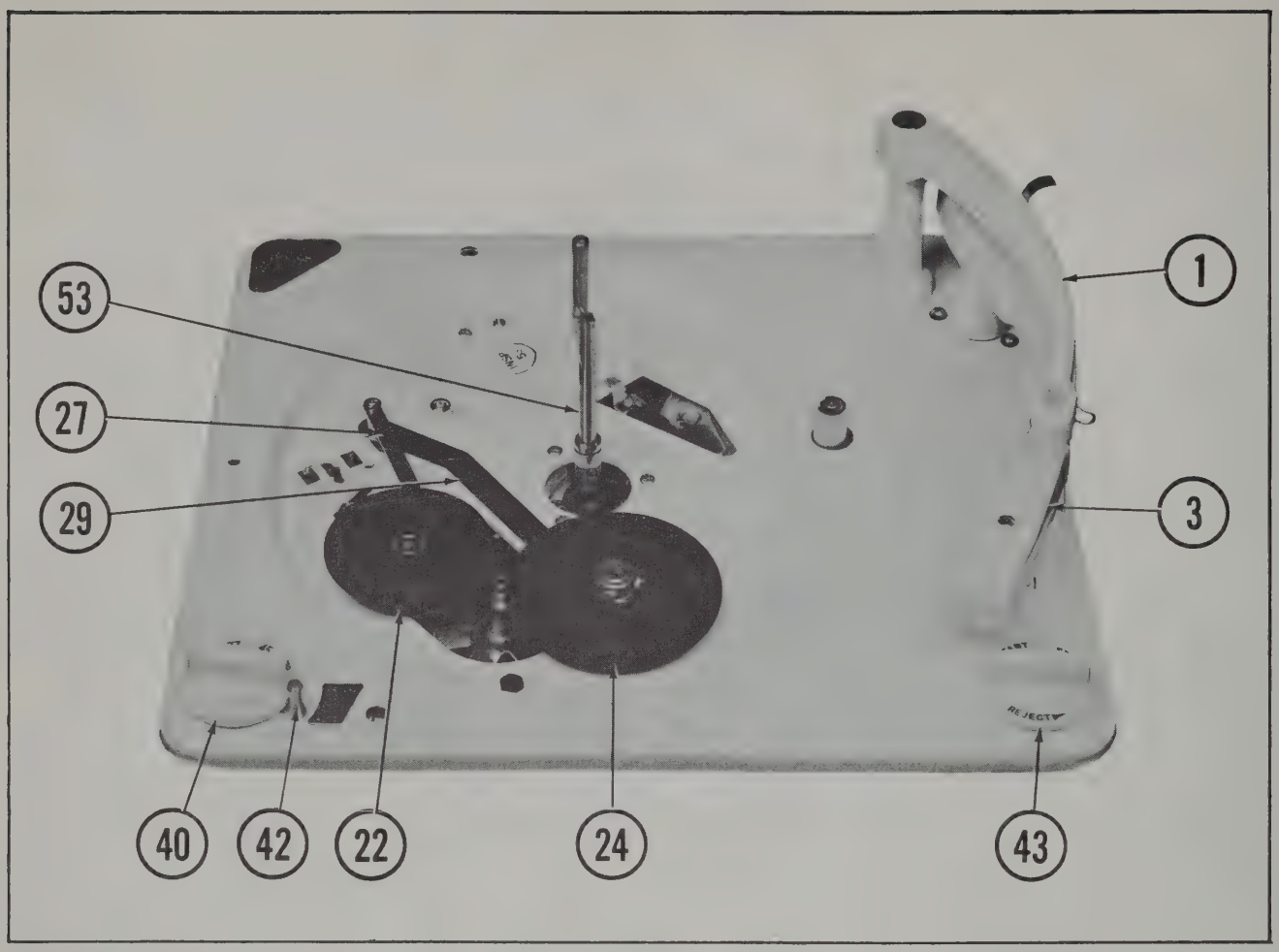

FIGURE 1

OPERATING INSTRUCTIONS

Loading

1. Hold record balancing arm (1) by the metal clip (1A), lift clear of spindle and swing out over pick-up arm. Place records on the spindle and lower to off set step. Holding records level, replace record balancing arm on spindle.

Starting

To start the changer, after checking that stylus and speed controls are properly set, turn main control (43) to the left and release when the turntable begins to rotate. The changer will operate automatically until the last record has been played, at which time the pick-up is returned to its rest and the supply to the motor is switched off.

Manual Operation

A single record may be played by moving the "Auto-Manual" lever (42) to the "Manual" position. When the changer is in the "Manual" position, the pick-up is disengaged leaving it free to be placed on the record in any desired position. After the record is played in this manner, the changer automatically returns the pick-up to its rest and the supply is switched off.

Rejecting

A record may be rejected at anytime by turning main control (43) fully to the left and releasing. The pick-up arm will immediately lift from the record and the next record will drop to the turntable and commence to play.

NOTE:

The pick-up cartridge is muted during the change cycle, thus avoiding reproduction of undesirable noise during the interval between records, and also avoiding the unpleasant "running down" effect due to slowing of the turntable when a record is rejected or when the "Stop" control is operated.

Stopping

The changer may be stopped at any time by turning main control (43) fully to the right. The supply to the motor is switched off and the pick-up arm may then be returned to its rest.

NOTE:

Rubber tired drive wheels (22 and 24) are automatically retracted when the unit is switched off. The development of flats on the tires, due to prolonged contact under pressure during periods of disuse, causing noisy running and unevenness of turntable speed is thus avoided.

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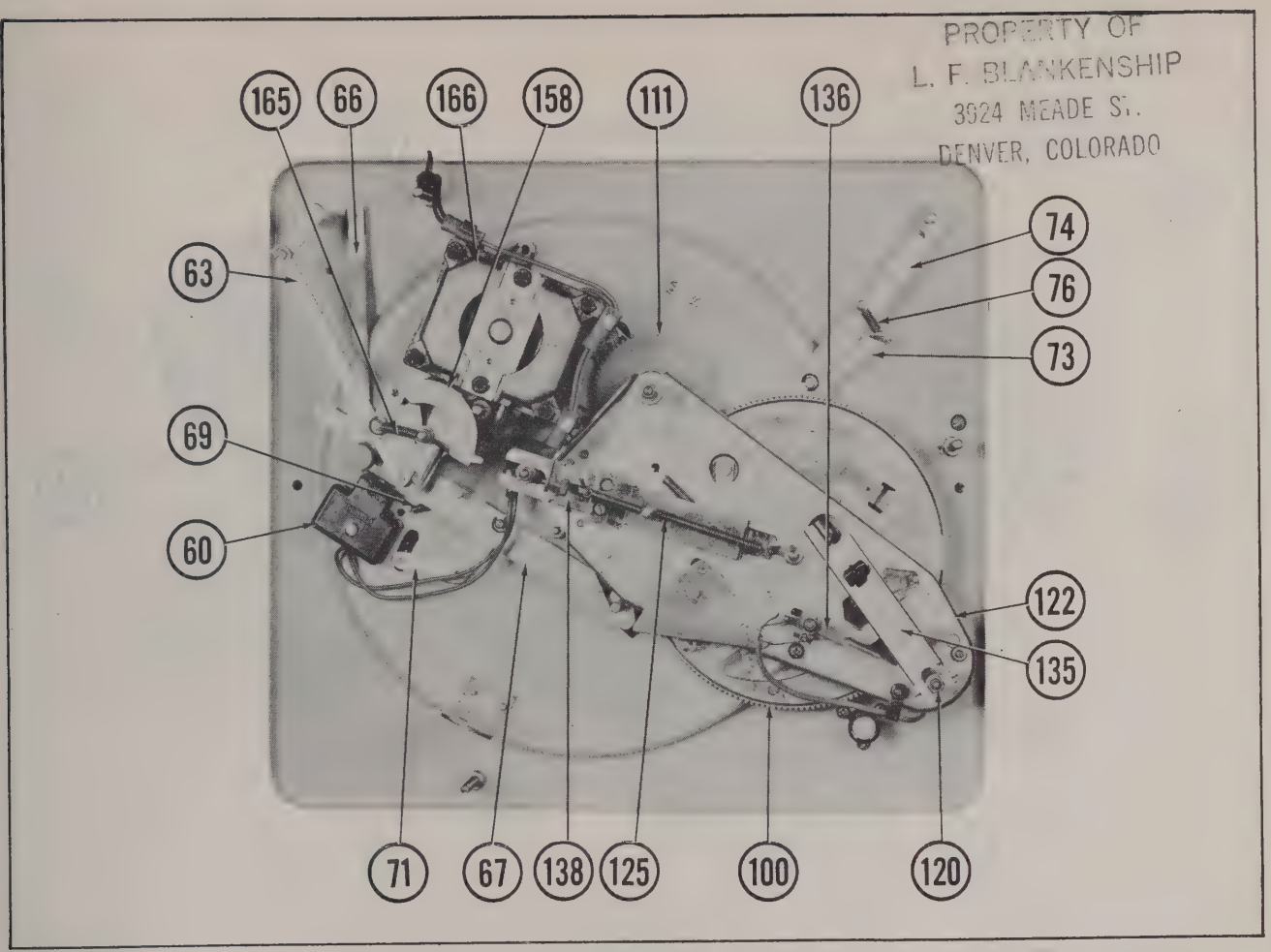

FIGURE 2

CHANGE CYCLE

It is recommended that the change cycle operation be observed by rotating the "Start-Stop-Rej." knob to the "Rej." position and turning the Cam Gear Assembly (100) by hand. The action described below can then be readily followed and the function of each part more easily understood. This changer is provided with what is known as a "Velocity Trip" mechanism. The change cycle is started by the faster inward motion of the pick-up arm when the needle enters the lead-out grooves at the end of a record.

The pick-up arm assembly and the pick-up tripping arm pushes striker feed lever (108), which, in turn, carries striker arm (103) in toward the turntable hub. Striker arm (103) is fed inward by the friction provided by its own weight resting on the curved end of striker feed lever (108).

While a record is playing, the slight movement of striker arm (103) is not sufficient to trip the mechanism because on each revolution of the turntable, the wiping action by the turntable hub projection (19A) moves striker arm (103) back far enough to clear the hub projection.

When the needle enters the lead out grooves of a record, causing the pick-up arm to advance rapidly toward the spindle, striker arm (103) is moved fast, enough and far enough to definitely engage the turntable hub projection (19A). As the hub projection engages with striker arm (103), the striker arm is pushed away from the turntable hub (toward the pick-up arm) far enough to cause Drive Shaft Bearing and Release Lever (106) to pivot in such a manner so as to release Cam Gear (100) from the flange located on bottom of Cam Gear (100). This caused two things to happen. First, it unlocks Cam Gear (100) from its out of cycle position. Secondly, it permits Drive Pulley (24) and its associated gear train to be pulled into contact with the motor shaft, thus being in position to drive the mechanism through the change cycle.

As Main Cam Gear (100) starts to rotate, Cam Gear Locating Roller (134) moves out of its notch in Main Cam Gear, causing Pick-up Lift Lever (135) to pivot raising Pick-up Lift Spindle (121). Pick-up Lift Spindle (121) raises the Pick-up Arm (3) from the record.

At the same time, muting switch assembly (136) is closed, shorting out the Pick-up cartridge, thus preventing any undesirable noises from coming through the amplifier while the mechanism is in cycle.

Simultaneously, the Pick-up Feed Lever Assembly (86) moves along the outside groove of Cam Gear (100), which is rotating clockwise. This is the connection that directs the pick-up arm outwards through a friction clutch arrangement, (Items 81 thru 95), when that phase of the change cycle is reached.

As Cam Gear (100) continues to rotate Pick-up

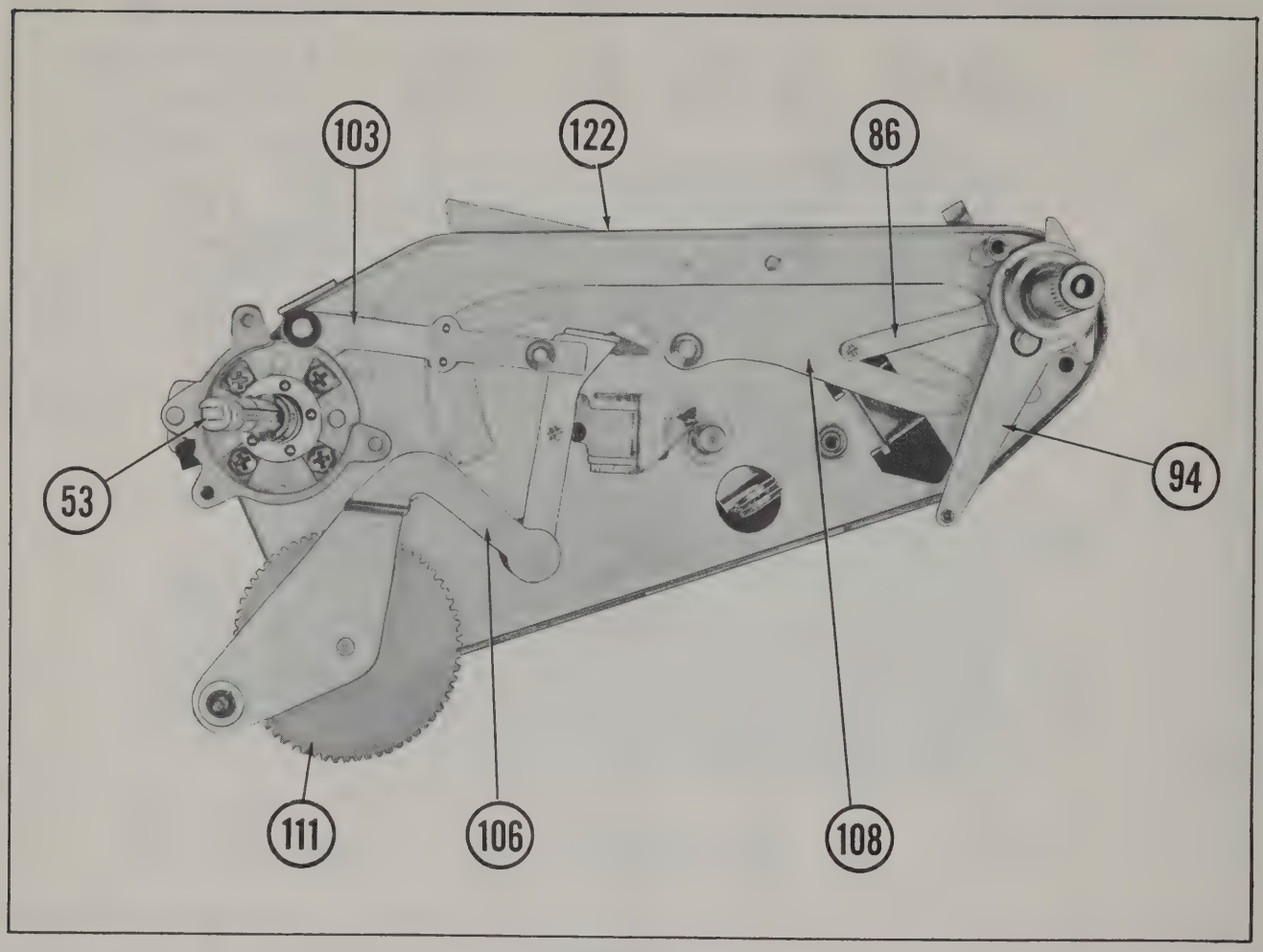

FIGURE 3

Feed Lever (86) runs along the groove, which causes Pick-up to move into the edge of the records. This also determines the Pick-up set down position. The Cam Gear (100) continues to rotate, the Pick-up Feed Lever (86) reaches a point, where the groove forces the Pick-up arm to move back from the records.

As the Cam Gear (100) continues to rotate, the projection (100B) comes into contact with the Record Dropping Slide (138) forcing it toward the spindle. This in turn moves the Record Selector Pawl (57) upward in the spindle causing the record to drop to the turntable.

The Pick-up Arm will now move inward to the right set down position. As the Cam Gear (100) comes to its out of cycle position, Cam Gear Locating Roller (134) rolls down an incline on the Cam Gear causing the Pick-up Lift Lever (135) to pivot, pulling the Pick-up Lift Spindle (121) down causing the Pick-up Arm to come into contact with the lead-in grooves.

The mechanism is automatically indexed for the Pick-up Arm to set down on either a 7", 10" or 12" record. This is accomplished by the Pick-up Arm striking the edge of the records on the spindle. This in turn causes the clutch arrangement (Items 81 thru 95) to slip, thereby causing Pick-up Feed Lever (86) to seek a path on the Cam Gear (100) corresponding to the size record which has been dropped from the spindle shelf.

During the preceeding sequence of lowering the arm to the record, muting switch (136) opens and the Pick-up cartridge becomes "live" again.

The projection located on bottom of Cam Gear (100) now moves against the Drive Shaft Bearing and Release Lever (106) and locks the Cam Gear in the out of cycle position. This action also draws the Drive Pulley (24) away from the motor shaft, completing the change cycle.

AUTOMATIC STOP

The automatic stop is brought into operation after the last record has been played by reason of the Automatic Shut Off Actuating Link (100C) striking the Control Switch Off Lever (73) and pushing the Control Lever (74) sideways thereby actuating Manual Control Link (67) disengaging Switch Link Contact (58).

ADJUSTMENTS

Needle Set Down

The position at which the stylus sets down on the record may be adjusted, if necessary, by means of an eccentric roller (101A) located on the Cam Gear Assembly (100). Turning this eccentric will make the test track wider or narrower. Mark the Cam and track adjuster with a pencil before moving the eccentric To make the set down position farther in from the

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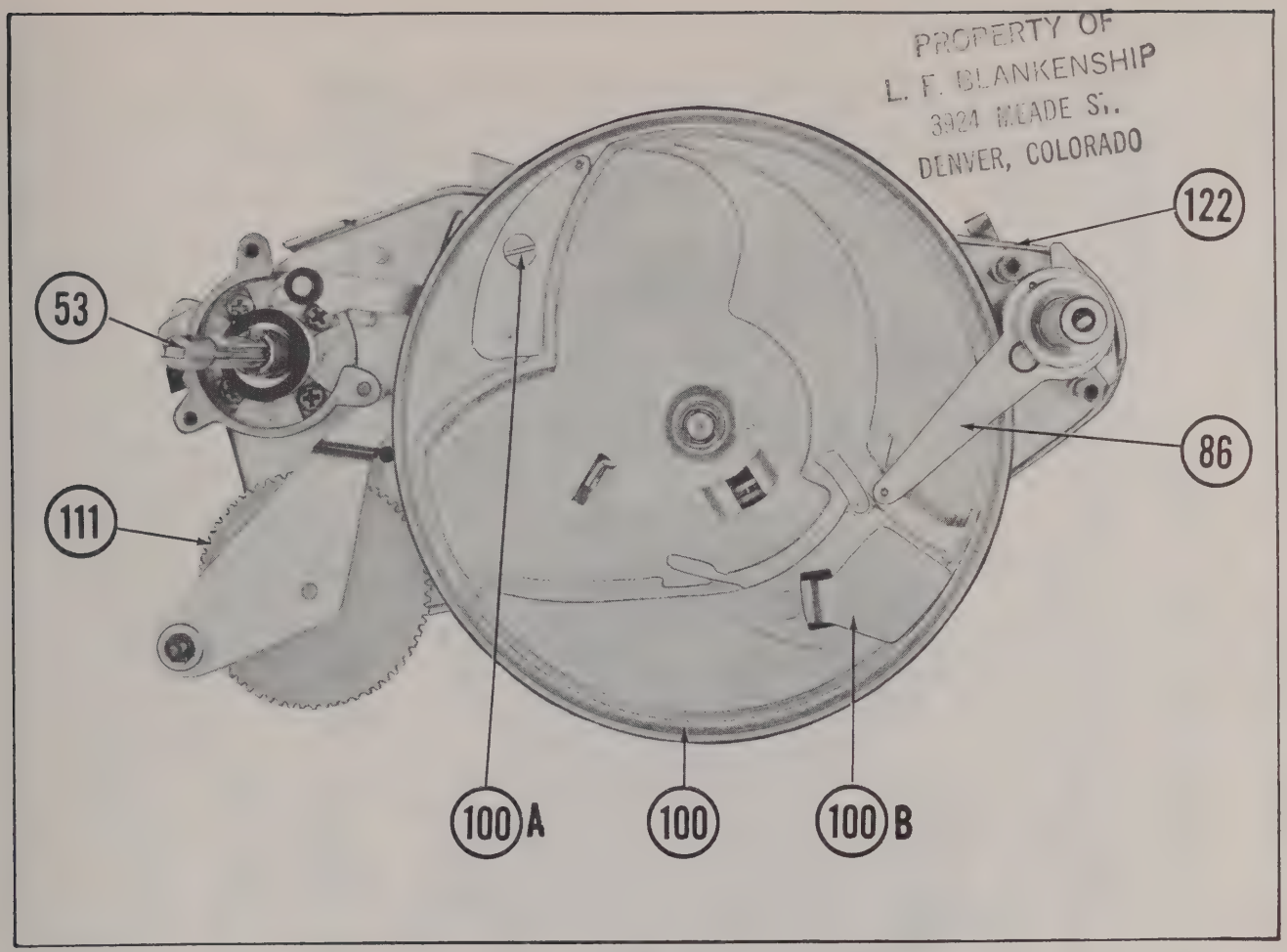


FIGURE 4

edge of the record, the test track should be made wider and to make the pick-up set down nearer the edge of the record the test track should be made narrower.

This adjustment can be made in two ways. The eccentric roller is accessible throught a cut out inthe base plate after removing the turntable. This operation may be also carried out from the underside provided there is enough room in the cabinet to operate a screwdriver. It is necessary to disconnect the electric supply before making the adjustment. Operate the starting switch and turn cam clockwise until eccentric screw appears.

It may be necessary to carry out this operation several times before the correct set down position is obtained.

The changer gives automatic positioning for all records and the above adjustment effects all positions equally.

Pick-Up Height Adjustment

The height to which the pick-up arm is lifted during the change cycle is controlled by the lift spindle (121. To make adjustment, if necessary, switch off the power during the change cycle at a point where the pick-up arm is swinging outwards after playing the record and is halfway to the edge of the record. Adjust the pick-up arm height by turning the lift spindle (121 until the top of the pick-up arm clears the under - side of the next record on the spindle by approximately 1/ 8".

Record Dropping Adjustment

This adjustment should not normally be necessary unless the changer has been dismantled to make replacements. To replace or check adjustment:

1. Remove all records and disconnect power.

2. Turn start control (43) and turn Cam Gear (100) in a clockwise direction until the large diameter post on the Cam Gear (100) pushes the record dropping bar (138) to its extreme postion. The record selector Pawl (57) should now rise nearly to the top of the slot above the step on the spindle and the pushing portion of the Pawl should protrude slightly beyond the outer edge of the shelf.

3. Set Pawl adjustment plate (139) half way up its slot and lightly tighten screws (141). Make sure that dropping slide is pushed forward to its fullest extent, by means of the Cam Gear (100), then adjust the Pawl upwards by means of the self-locking nut (127) until a clearance of . 015" is obtained between the position of the Pawl and slot above the step in the spindle. Adjust plate (139) until it can be pushed forward no further. Adjust to give 015" clearance between the selector Pawl stop and bottom end of Pawl.

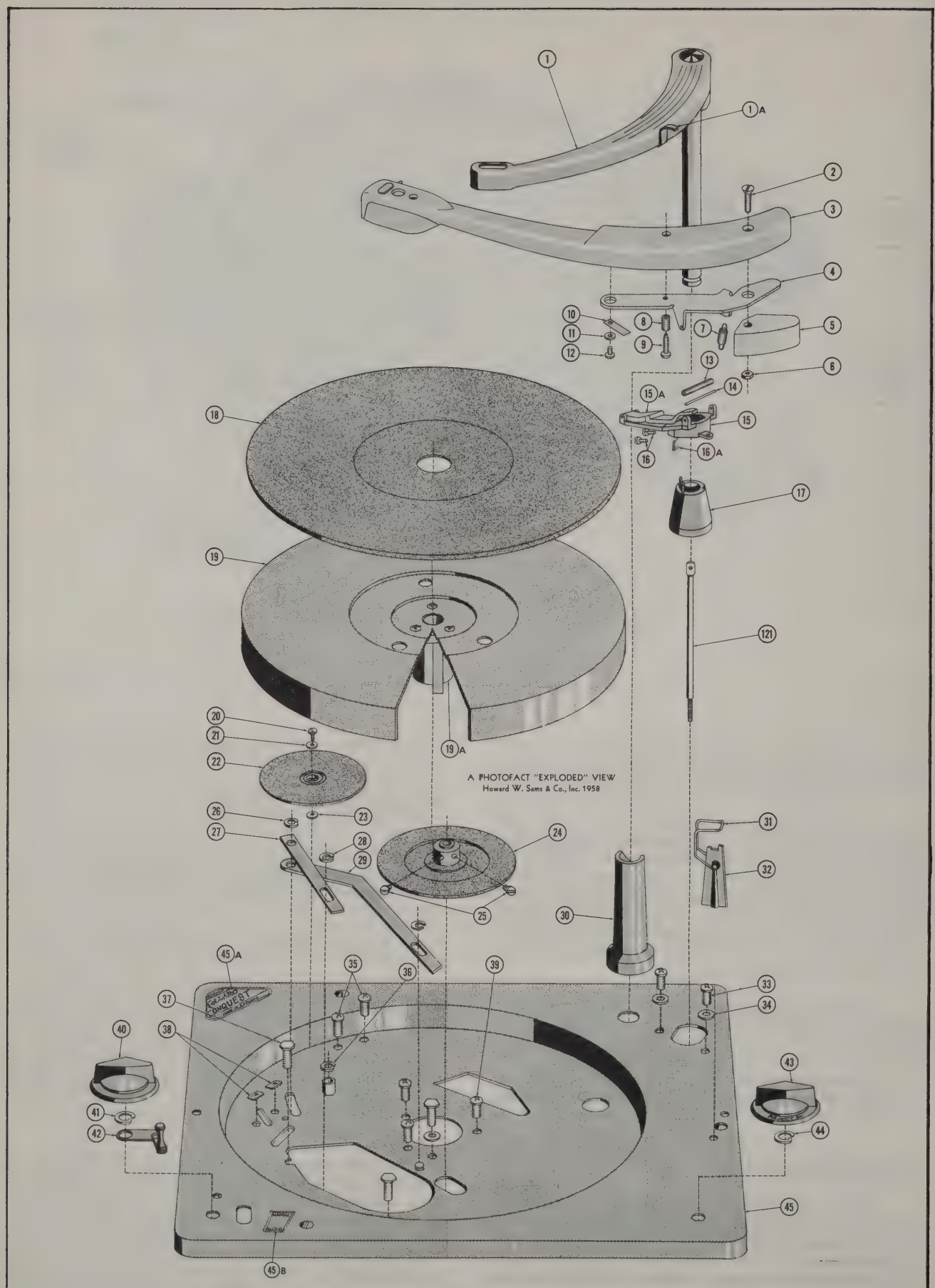


FIGURE 5A. EXPLODED VIEW OF PARTS ABOVE BASEPLATE

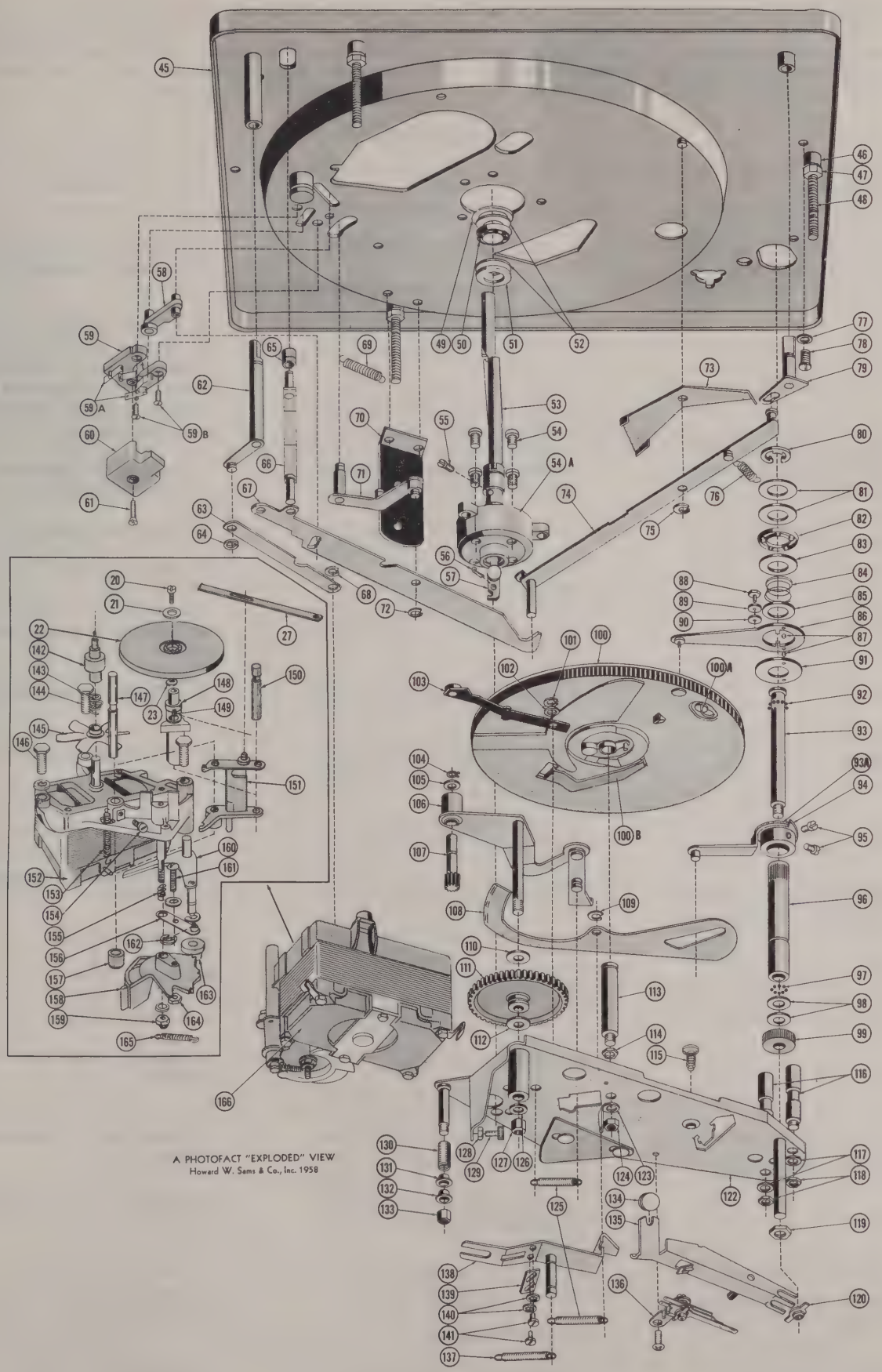


FIGURE 5B. EXPLODED VIEW OF PARTS BELOW BASEPLATE

MAINTENANCE OF MOTOR AND TURNTABLE DRIVE

No lubrication of the motor is normally required as it is fitted with self-oiling bearings. The only maintenance necessary consists of occasional removal of the turntable to clean its inter rim and the driving surfaces of the Motor Pulley and Idler Wheel, by wiping with a clean solvent moistened rag. The thrust washers and ball race located under the turntable should also be examined, and if necessary, washed clean with a petroleum solvent and relubricated with a small amount of soft grease.

TROUBLE CHART

Sympton	Cause	Remedy
Motor running slow, uneven speed, noisy or background rumble.	1. Bearings out of alignment. 2. Rotor not centered in Stator.	1. Tap motor lightly on all sides while running to line up bearings. 2. Loosen 6 clamp bolts, heads on underside of motor frame, insert 2 shims 1" wide by .010" thick bewteen Stator and Rotor, tighten 6 clamp bolts and remove shims.
Turntable runs slow, has background rumble, noisy running or wow.	1. Extra steel or neoprene washer or incorrect washer fitted under turntable bearing. 2. Dirty or dry bearing. 3. Damaged steel thrust washer. 4. Damaged ball in thrust race. 5. Ball binding in Thrust Cage. 6. Damaged ball cage contacting thrust washer or binding on spigot. 7. No end play in bearing.	1. Remove "C" washer from center of turntable. 2. Clean and Lubricate. 3. Replace washer. 4. Replace damaged ball. 5. Free and Lubricate. 6. Replace damaged ball cage. 7. Make sure Turntable bearing with "C" washer in place has .015" max. end play.
Motor Pulley flutters or causes cross modulation.	1. Bent motor spindle. 2. Enlarged bore in pulley. 3. Burr on motor spindle.	1. Straighten or replace. 2. Replace pulley. 3. Remove burr.
Motor pulley noisy running.	1. Enlarged bore in pulley. 2. Undersize motor spindle.	1. Replace pulley. 2. Replace with correct size spindle.
Motor pulley causing wow or slow running.	1. Upper face of Idler Wheel over lapping step of Motor Pulley. 2. Lower face of Idler Wheel contacting flange of Motor Pulley	1. Adjust so it contacts the proper step. 2. Adjust so it contacts the proper step.
Idler Wheel causing wow or noisy running.	1. Distorted Idler Wheel. 2. Rubber damaged at rim.	1. Replace.
Idler Wheel causing wow.	1. Distorted Idler Wheel. 2. Boss loosened in Idler	1. Replace 2. Tighten boss or replace

Sympton	Cause	Remedy
	Wheel.	Idler Wheel.
	3. Bushing tight on spindle.	3. Free bushing
	4. Dry bearing.	4. Clean bearing and lubricate.
	5. No end play in bearing.	5. Bearing must have .005" end play with retaining washer and screw in place.
	6. Washer omitted above or below bearing permitting rim of wheel to override flange of Motor Pulley.	6. Replace washer.
	7. Extra washer or incorrect washer fitted, causing lack of end play and possibly tightness	7. Remove extra washer.
Slow Running.	1. Distorted Idler Swivel Arm (148).	1. Idler Swivel Arm must be square to Motor Spindle.
	2. Rim of Idler Wheel over-riding edge of step of Motor Pulley.	2. Reset Idler Wheel so it will ride on the correct step.
Failure of drive to engage on 78 r.p.m. step on Motor Pulley.	Idler Swivel Arm (148) hitting Motor frame.	Adjust Nut (159) after first checking that Motor Pulley is at correct level.
No drive or uneven speed on 78 r.p.m.	1. Incorrect setting of spindle (147).	1. See Adjustments.
	2. Incorrect adjustment of Nut (159).	2. Adjust so that wheel is set at correct working level relative to each driving diameter of Motor Pulley.
Slow or uneven Turntable speed or Turntable does not rotate.	1. Holes in Idler Slide Arm (151) through which spindle (150) passes are out of line.	1. Realign so spindle (150) will rotate freely.
	2. Spindle (150) bent.	2. Straighten or replace.
	3. Forks of Idler Slide Arm (151) bent or twisted and pinching boss of Idler Swivel Arm (148).	3. Straighten Forks so boss of Idler Swivel Arm is free.
	4. Set-screw loose, allowing spindle (150) to drop out of engagment with top fork of Idler Slide Arm (151).	4. Reset Spindle and Tighten set-screw.
	5. Holes in Idler Slide Arm (151) throught which Spindle (147) passes is out of alignment.	5. Realign Idler Slide Arm so spindle is free.
	6. Spindle (147) bent.	6. Straighten or replace.
Turntable does not rotate or rotates unevenly on 78 r.p.m.	Top of Spindle (147) and Idler Wheel (22) coming into contact	Adjust so Idler Wheel (22) clears top of Spindle (147) when operating on 78 r.p.m.
No reproduction of sound when changer is in operation.	Pick-up Muting Switch short circuited.	Bend contacts of muting switch (136) so there is between .010 and .025" clearance between

TROUBLE CHART (CON'T)

Sympton	Cause	Remedy
		the contacts when the changer is in play position.
Pick-up fails to track correctly.	1. Pick-up lead trapped or tight.	1. Free pick-up lead and make sure it has sufficient slack when connected to muting switch or terminal board.
	2. Cam following pin touching bottom of cam groove.	2. Adjust the pin away from the cam by turn the Hex screw (88) in a clockwise direction. Do not give too much clearance otherwise the follower pin may jump out of the cam groove while the cam is rotating in cycle.
	3. Ball race in pick-up base too tight.	3. Loosen nut (119) slightly and adjust nut (99) until the correct clearance is obtained. Apply a small amount of machine oil to each race.
	4. Pick-up base cover fouling unit plate.	4. Place two pieces of .015" material between the pick-up base cover and the unit plate. Lightly tighten two screws in pick-up swivel and make sure that with the changer switched off, the pick-up arm just reaches its rest and goes to within 1" of record spindle. Tighten 2 pick-up swivel screws, remove setting material from under pick-up base cover and recheck.
	5. Chipped or damaged pick-up stylus.	5. If stylus is chipped or damaged, replace.
Changer Jamed.	Pick-up Feed Lever (86) jumped out of its track and fell into one of the holes in the cam.	Lift Pick-up Feed Lever out of hole with a screwdriver and turn cam gear in a clockwise direction.

Ref No.	Part No.	Description
1	3913	Record Balancing Arm
1A		Metal Clip
2		Pick up Arm Mounting Screw
3		Pickup Arm
4		Pickup Arm Mounting Plate
5		Counter-Balance
6		4 B. A. Mounting Screw Nut
7	2958	Pickup Arm Counter-Balance Spring
8		Compression Spring
9		Pickup Arm Height Adjustment Screw
10		Pickup Lead Bracket
11		Washer
12		Screw
13		Pickup Arm Hinge Spring
14		Pickup Arm Hinge Pin
15		Pickup Arm Hinge
15A		Pickup Arm Lift Hinge
16		Hinge Mounting Screws
17	5123	Pickup Base Cover
18	3574	Turntable Cover, Maroon
	4368	Turntable Cover, Black
	4369	Turntable Cover, Cream
19	4407	Turntable
19A		Part of Ref. No. 19
20	126	8B. A. x 1/8" Screw
21		Washer
22	3199	Idler Pulley Assembly
23		Washer
24	5102	Drive Pully
25	3631	6 B. A. x 1/4 "Screw, Drive Pulley
26		"C" Washer
27	4542	Idler Withdrawal Link
28		"C" Washer
29		Cycle Delay Lever
30	5202	Balancing Arm Column Assembly
31	3993	Pickup Clip
32	3991	Pickup Rest
33		Sub-plate Ass'y. Mounting Screws
34		Washers
35		Support Bracket Mounting Screws
36		"C" Washer
37		Motor Mounting Screws
38		Speed Nuts, Switch Mounting
39	1650	Mounting Screws for Spindle Ass'y.
40	4385	Speed Control Knob
41		"C" Washer
42	4642	Manual Control Lever Assembly
43	3652	Start-Stop-Rej. Knob
44		"C" Washer
45		Base Plate
45A		"Collaro" Conquest Decal
45B		Manual Automatic Decal
46		Base Plate Mounting Spacer
47		Base Plate Mounting Nut
48		Base Plate Mounting Screw
49		Rubber Washer
50	2884	Turntable Thrust Ball Cage Ass'y.
51		Rubber Washer
52	3894	Turntable Thrust Washer
53	4490	Record Spindle / Slide Ass'y.
54	5255	Turntable Spigot Securing Screws
54A	5261	Turntable Spigot/ Housing/ Record Spindle Assembly
55		Spindle Retaining Screw
56		Cotter Key
57	4491	Record Selector Pawl Ass'y.
58	5170	Switch Link Contact Ass'y.
59	2996	Switch Base
59A	4237	Switch Contacts
59B		Switch Mounting Screws
60	158	Switch Cover
61		Switch Cover Mounting Screw
62	5171	Speed Control Lever/ Spindle Ass'y.
63	3664	Speed Control Link
64		"C" Washer
65		Manual Operating Link Roller
66	5192	Manual Operating Link Ass'y.
67	5111	Manual Control Link
68		"C" Washer
69		Tension Spring
70	2052	Support Bracket
71	5191	Switch Control Lever Assembly
72		"C" Washer
73	5114	Control Switch Off Lever
74	5231	Control Lever Assembly
75		"C" Washer
76	5143	Control Lever Spring
77		Washer
78		Pickup Rest Mounting Screw
79	5168	Control Plate / Spindle Assembly
80	5131	"C" Washer
81	3894	Washer
82	2884	Pickup Arm Thrust Ball Cage Ass'y.
83	3894	Washer
84	5212	Pickup Feed Lever Compression Spring
85		Washer
86	5195	Pickup Feed Lever Assembly
87		Ball Bearings
88	5223	Pickup Feed Lever Adjustment Screw
89		Washer
90		Washer
91	5124	Pickup Friction Washer
92	5147	1/16" Steel Balls
93	5125	Pickup Pivot Center Tube
93A	5128	Pickup Friction Washer, Felt
94	5185	Pickup Lever Boss Assembly
95	800	Screws
96	5129	Pickup Pivot
97	5147	1/16" Steel Balls
98		Washers
99		Nut
100	5186	Cam Gear Assembly
101	5397	"C" Washer
102	2890	Washer
103	5183	Striker Arm Assembly
104	5157	"C" Washer
105		Washer
106	5182	Drive Shaft Bearing And Release Lever Ass'y
107	5154	Drive Pinion
108	5117	Striker Feed Lever
109		"C" Washer
110		Washer
111	5241	Intermediate Gear Assembly
112		Washer
113	5148	Shaft For Cam Gear Assembly
114		Nut
115	5141	Pickup Lift Lever Spring
116	5178	Sub-plate Support Studs
117		Washers

MECHANICAL PARTS LIST (CON'T)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
118		Nuts		4392	Pulley Yellow, 50 Cycle
119	5213	Thin Hex. Nut 1/4" x 40 T.P.I.		4389	Pulley Red, 50 Cycle
120	5196	Locknut Flange Assembly	143		Coupling Spring
121	5127	Pickup Lift Spindle	144		Motor Mounting Screw
122	5243	Sub-plate Assembly	145	4429	Fan Assembly
123		Spring Retaining Washer	146		Motor Screw
124		Nut	147		Spindle
125	3144	Tension Spring	148		Idler Swivel Arm
126		Washer	149		Swivel Arm Set Screw
127		Nut	150	4401	Idler Slide Arm Spindle
128	1251	4B.A. Nut	151	4403	Idler Slide Arm Assembly
129	3719	Pawl Limit Screw	152		Motor
130		Compression Spring	153	4796	Slide Arm Return Spring
131		Collar	154		Slide Arm Set Screw
132		Collar	155	3020	Compression Spring
133	1276	Self Locking Nut 4B.A.	156	3664	Speed Control Link
134	5113	Cam Gear Locating Roller	157	4400	Lift Collar
135	5248	Pickup Lift Lever Assembly	158	4387	Speed Control Cam
136	5246	Muting Contact Assembly	159		Locknut
137	2840	Record Spindle Tension Spring	160	4516	Cam Lever
138	5172	Record Dropping Slide Assembly	161		Control Link Mounting Screw
139	5098	Pawl Adjustment Plate	162		"C" Washer
140		Washers	163		Cam Index Roller
141	1979	6B.A. x 1/8 Screw	164		Hex Nut
142	4390	Pulley Blue, 60 Cycle	165		Index Spring
	4391	Pulley Green, 50 Cycle	166		Complete Motor Assembly

PHOTOFACT* Folder

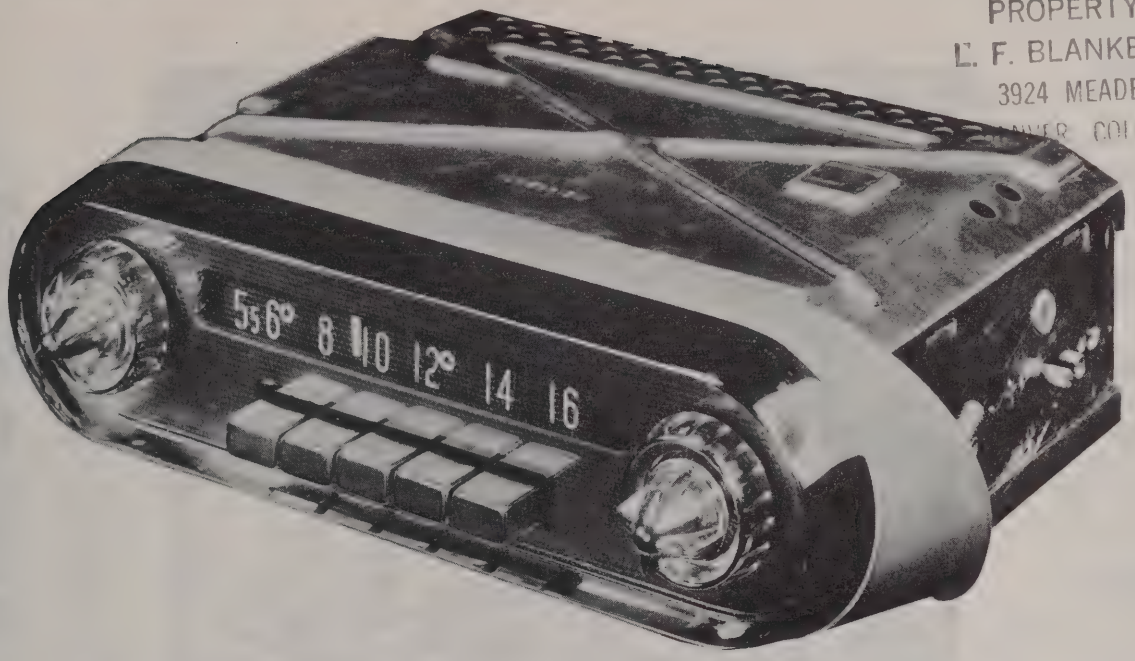
*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

MOPAR MODELS 845, 846

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER COLORADO

MOPAR MODELS
845, 846



TRADE NAME	Mopar Models 845 (For 1957 D66, D67, D70, D71, D72 Dodge Automobiles), 846 (For 1957 S25, S26, S27 DeSoto Automobiles)
MANUFACTURER	Motorola Inc. 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated Custom Built AM Automobile Receiver With Transistorized Output
TUBES (Five)	Types 12BL6 RF Amplifier, 12AD6 Converter, 12AF6 IF Amplifier, 12AJ6 Det. - AVC - AF Amp., 12K5 AF Amplifier
POWER SUPPLY	12 Volt Storage Battery
RATING	1.6 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540 - 1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting. Set tone control to High.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd.	High side to pin 7 (grid) of 12AD6 (V2). Low side to chassis.	262.5KC (400∿ Mod.)	High frequency end stop	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	Fig. 1.	Through dummy to antenna receptacle.	1610KC	"	"	A5, A6, A7	"
	It is not necessary to perform steps 3 and 4 unless tuner has been tampered with or associated components have been replaced. Before proceeding with step 3, back tuning cores 1 3/8" out of coils. Alignment tool #66A76278 may be used.						
3.	Fig. 1.	Through dummy to antenna receptacle.	1610KC	High frequency end stop	Across voice coil	A5, A6, A7	Adjust for maximum output.
4.	"	"	1020KC	49/64" from high frequency end stop	"	A8, A9, A10	Adjust for maximum output. Repeat steps 3 and 4 until no further improvement is noted. Step 3 should be the last step.

With radio installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A7 for maximum output.

POINTER CALIBRATION

With radio tuned to a 1000KC signal, adjust pointer adjusting cam until pointer coincides with the 1000KC mark on the dial scale.

PUSHBUTTON ADJUSTMENT

1. Antenna should be fully extended and receiver allowed to warm up for 15 minutes.
2. Pull pushbutton out.
3. Tune manually to desired station.
4. Press pushbutton in firmly.
5. Repeat for remaining pushbuttons.

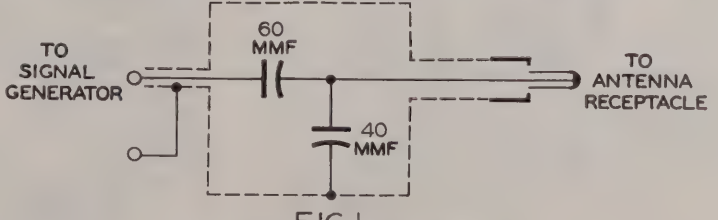


FIG. 1

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BL6	
V2	Converter	12AD6	
V3	IF Amplifier	12AF6	

ITEM No.	USE	TYPE	NOTES
V4	Det. - AVC - AF Amp.	12AJ6	
V5	AF Amplifier	12K5	

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N176	Output	2N155		2N176	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■500	16	23B539261	AFH2-02-10	B0045	WP200.5			R2299 *
B	▲100	16							
C2	500	3	23B539260	PRS6V500	BR500-6	TC605	TD-500-6	MTH-0650	TVA-1103

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	20-150		20B532899							①
C4	.02	200	8R121003	P288N-02	DD-203	CUB4S2	ED-02	GEM-412	2TM-S2	
C5	18		21R120578							N150 10%
C6	8.2		21R120159	NPO-SI 8.2		C10V82C	TCO-8.2			
C7A	50-260		20B539699							
B	47									
C	120-220									
C8	100		21R124032							N220
C9	10000		21R482726	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C10	27		21R410089		TCZ-27	C10Q27C	TCO-27			NPO 10%
C11	47		21R115593	N750-SI 47	TCN-47	C10Q47U	TC7-47	NT-5447	5TCU-Q47	N750
C12	10000		21R482726	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C13	5000		21R115312	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C14	220		21R410115	BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C15	100		21R400537	N750-SI 100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	N750
C16	10000		21R482726	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	

① Part #20B534809 (20-180mmf) used in Model 845

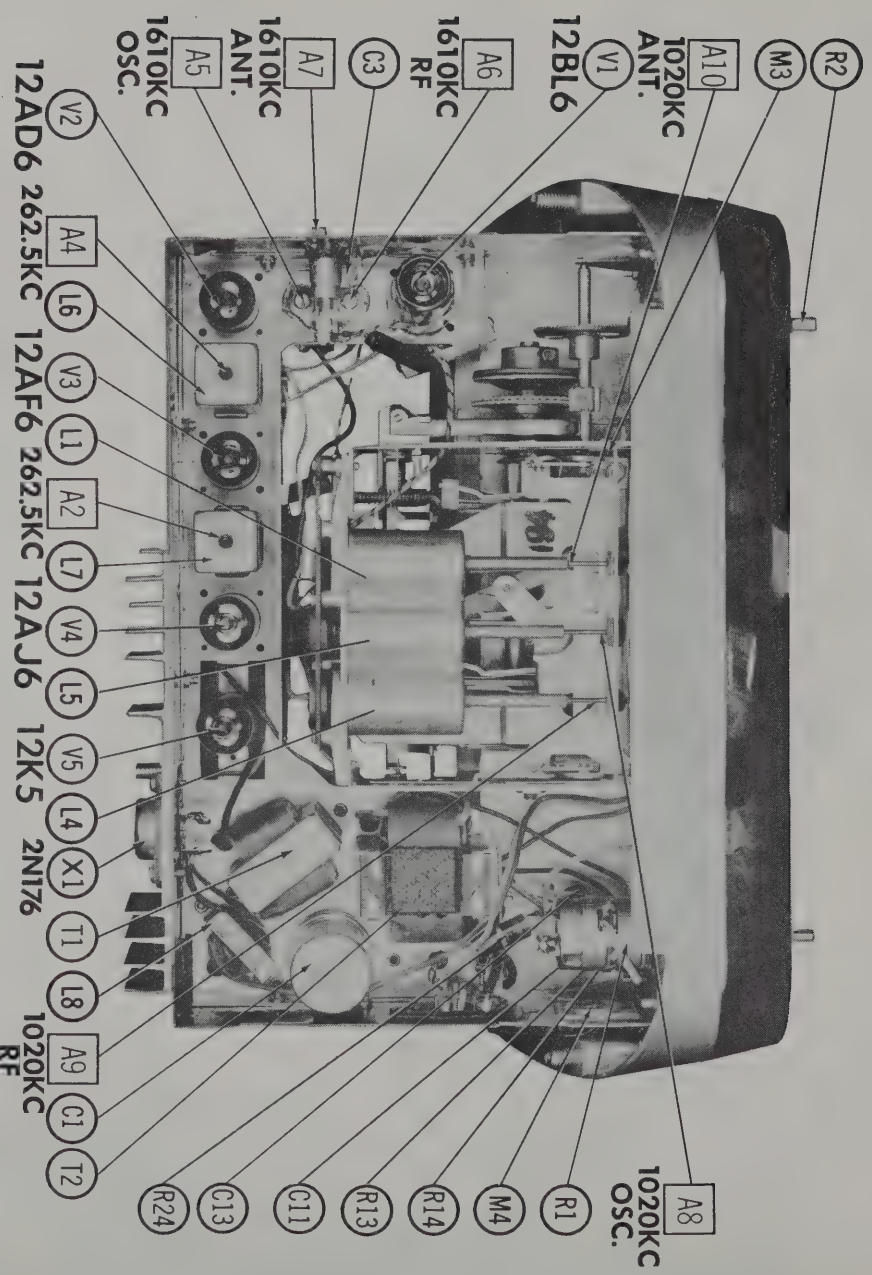
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	4meg	½	18B539819				■ UE3746-S	Tone Note 1
B	1.5meg	½						Volume, Tap ② 330K
C	Switch							
R2	25Ω	2	18K540132					Fader (Wirewound) Note 2
R3	150Ω	1	18A536645					Bias (Wirewound)

Note 1. Part #18K539820 used in Model 845 Note 2. Not used in Model 845

■ STA-LOC Equivalent FB46L, OS1625, RU16T334, IS2062, US-42

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	MOTOROLA PART No.	NOTES
R4	470K		6R6032	
R5	1800Ω		6R2089	
R6	470Ω		6R3949	Note 1
R7	2.7meg		6R488136	
R8	4.7meg		6R2122	
R9	33K		6R6012	
R10	10meg		6R2109	
R11	1meg		6R6004	
R12	47K		6R6056	
R13	68K		6R6001	
R14	1200Ω		6R119925	

ITEM No.	RATING OHMS	RATING WATT	MOTOROLA PART No.	NOTES
R15	2.7meg		6R488136	
R16	3.3meg		6R2118	
R17	1000Ω		6R6301	
R18	68Ω		6R6007	
R19	3.3meg		6R2118	
R20	15Ω		6R410033	
R21	39Ω	1	6R3961	
R22	10Ω		6R5621	
R23	100Ω		6R6018	
R24	22Ω	2		Note 2

Note 1. Some versions may use 680Ω in this application (Part #6R3931).
Note 2. Not used in Model 845. Model 846 may use 27Ω & 270Ω connected in parallel.

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO PRI.	TURNS RATIO SEC.	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	9.5:	1	25B541758						Alternate Part #25K540013

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.1	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	62.5Ω	3-4Ω	25C539881						
	Turns Ratio PRI.	Turns Ratio SEC.2							
	1.5:	1							

SPEAKER

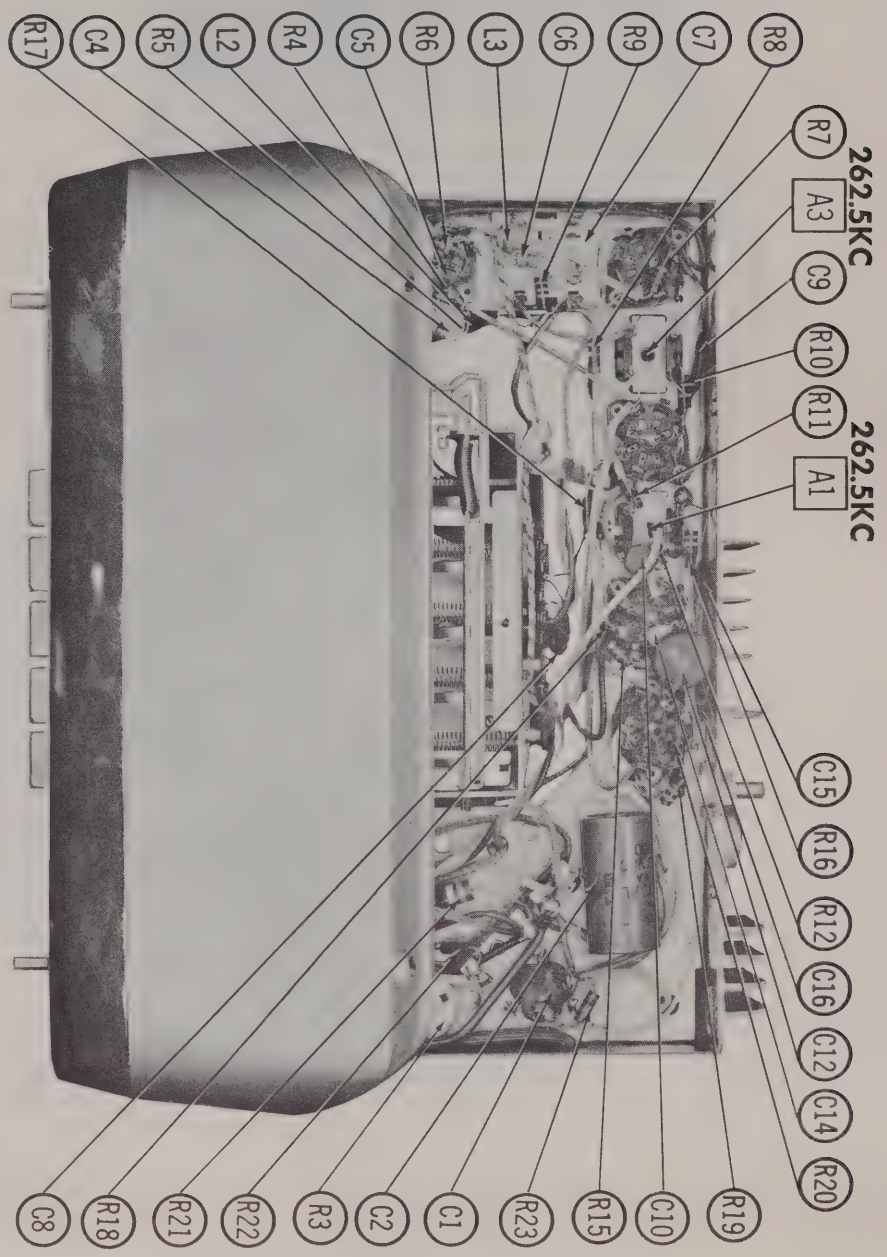
ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA MOTOROLA PART No.	QUAM PART No.	NOTES
SP1	5" X 7"	PM	3-4Ω	50D540194 ①	57A21	① Used in Model 846
	5" X 7"	PM	6-8Ω	50K540003 ②	57A21Z7	② Used in Model 845

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Ant. Coil	* 24C536308				
L2	RF Choke	24K539955				Includes 27mmf cap.
L3	IF Trap Coil	24K539616	19-3125	TV-195	6153	133 Microhenries
L4	RF Coil	* 24C536308				
L5	Osc. Coil	* 24B536300				
L6	Input IF	24B536693	16-6752	BC-350	12-H1	
L7	Output IF	24K532153	16-6754	BC-354	12-H6	

* Part of Tuner M3

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L8	1. 6A	. 7Ω	3. 8 Mihy.	25K540136					

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	SFE	7½A 32V	65R122346	9K540495 ①	30307. 5 (7AG 7½A 32V)	155009	SFE 7½	HDH

① Part #95K540494 used in Model 845

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Dial Light	65R10867	#44 (Two used in Model 845)
M3	Tuner	77E539570	AT-200 (Complete) Model 846
	Tuner	77E539642	AT-196 (Complete) Model 845
M4	Spark Plate	48K539953	Selenium Type

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Escutcheon	13C539098	Model 846
Escutcheon	13D539086	Model 845
Knob	1V540099	On-Off-Volume & Tuning, Model 846
Knob	1V540260	On-Off-Volume & Tuning, Model 845
Knob	36C539088	Tone & Speaker, Model 846
Knob	36B539078	Tone & Dummy, Model 845
Dial Scale	34K539545	Model 846
Dial Scale	61B539949	Crystal, Model 845
Dial Scale	34C539581	Model 845

PARTS LIST AND DESCRIPTIONS (Continued)

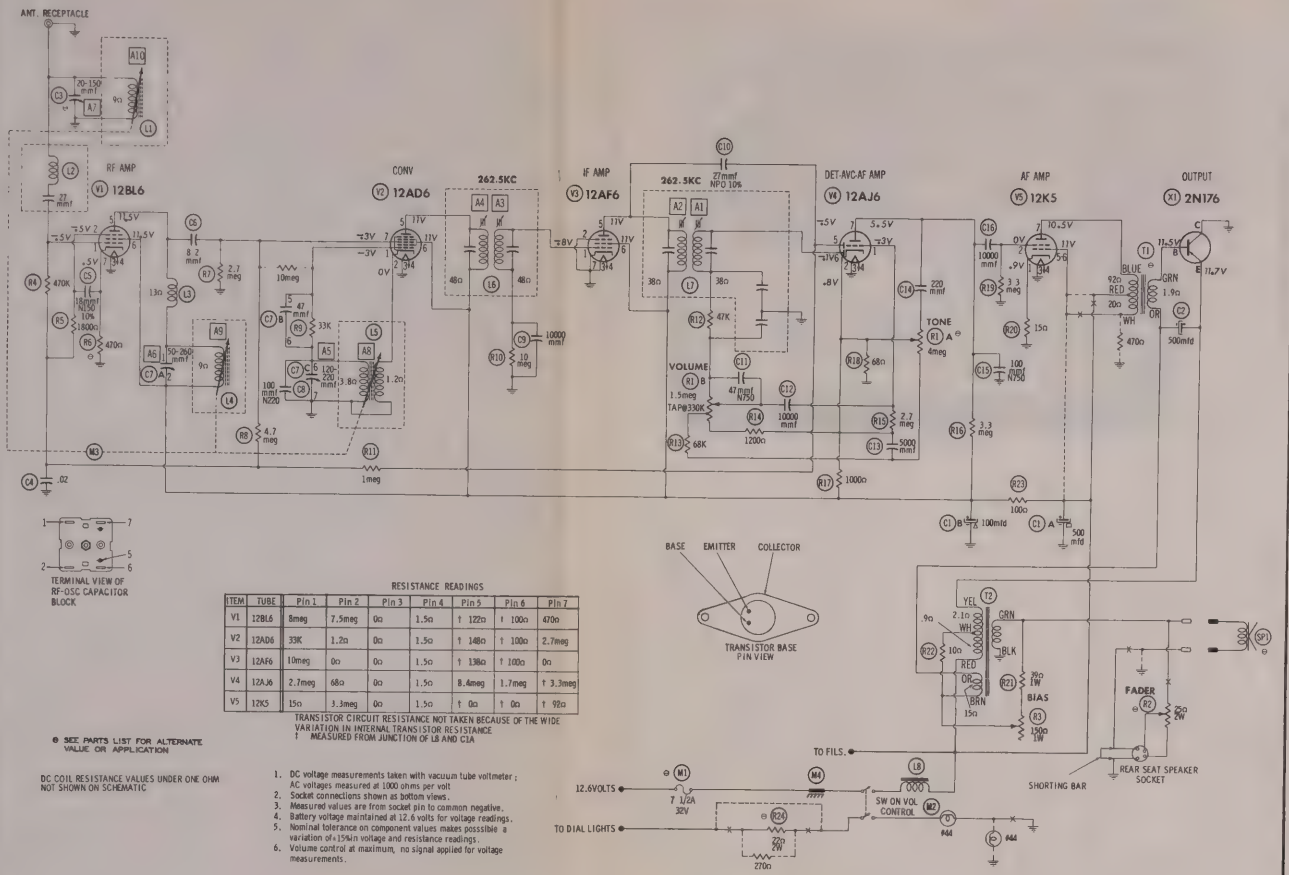
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire	Use BELDEN No. 8885
Bonding Strap	Use BELDEN No. 8661

TRANSISTOR BIAS ADJUSTMENT (R3)

The bias adjustment should be checked if the transistor is replaced.

1. Set control (R3) to its maximum resistance position.
2. Connect the negative lead of a low range VTVM to the junction of T2 and C2 and the positive lead to the junction of T2 and R22.
3. With a power source of 12 volts DC connected to the receiver, adjust R3 for a reading of . 85 volts on the meter. This is equivalent to an emitter current flow of 450MA.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BL6	8meg	7.5meg	0Ω	1.5Ω	↑ 122Ω	↑ 100Ω	470Ω
V2	12AD6	33K	1.2Ω	0Ω	1.5Ω	↑ 148Ω	↑ 100Ω	2.7meg
V3	12AF6	10meg	0Ω	0Ω	1.5Ω	↑ 138Ω	↑ 100Ω	0Ω
V4	12AJ6	2.7meg	68Ω	0Ω	1.5Ω	8.4meg	1.7meg	↑ 3.3meg
V5	12K5	15Ω	3.3meg	0Ω	1.5Ω	↑ 0Ω	↑ 0Ω	↑ 92Ω

TRANSISTOR CIRCUIT RESISTANCE NOT TAKEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE
↑ MEASURED FROM JUNCTION OF L8 AND C1A

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

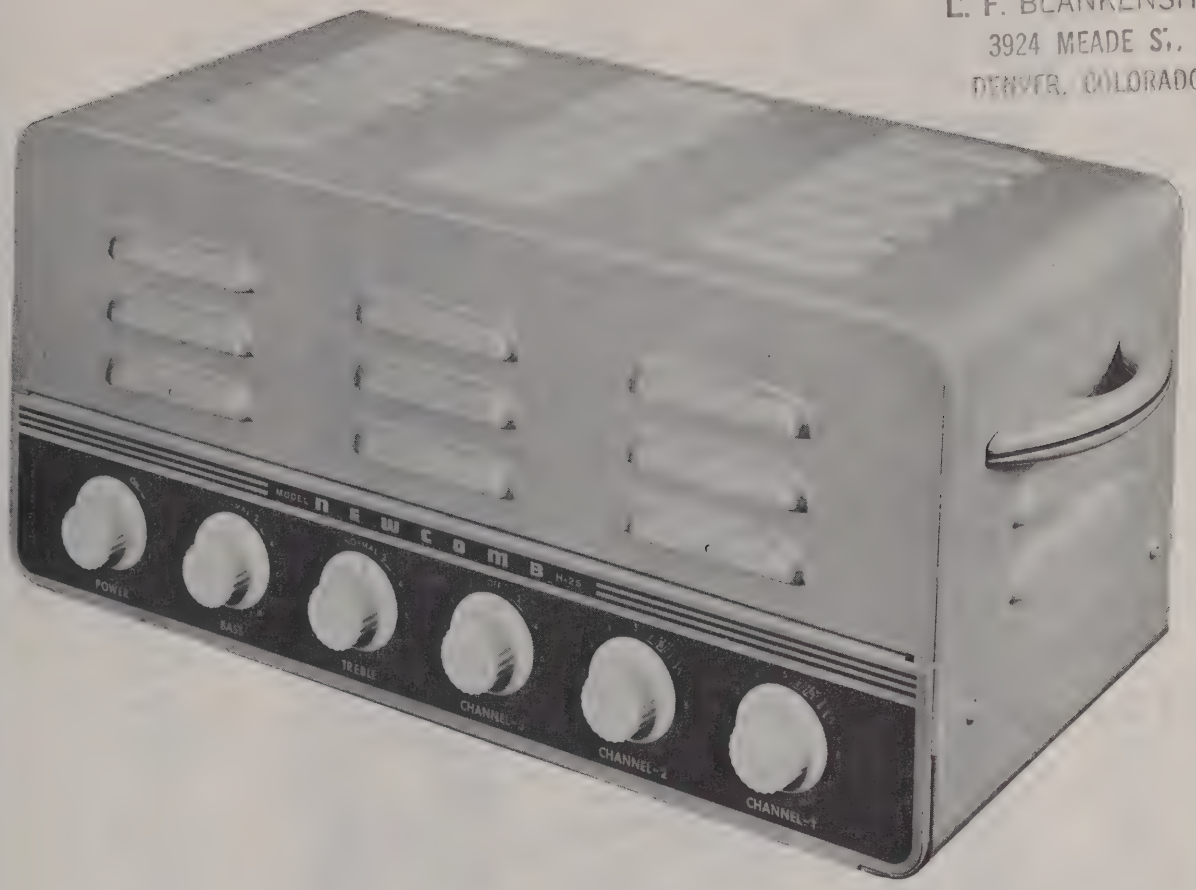
*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

NEWCOMB MODEL H-25

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

NEWCOMB
MODEL H-25



NEWCOMB
MODEL H-25

TRADE NAME	Newcomb Model H-25	
MANUFACTURER	Newcomb Audio Prod. Co., 6824 Lexington Ave., Hollywood 38, California	
TYPE SET	AC Operated 4 Channel 25 Watt Audio Amplifier	
TUBES (Eight)	Types 6SF5 Mic 1 Preamplifier, 6SF5 Mic 2 Preamplifier, 6SF5 Mic 3 Preamplifier, 6SJ7 AF Amplifier, 6SN7GTB AF Amp.-Phase Inv., (2)6L6GB Output, 5U4GB Rectifier	
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING 1.1 Amp. @ 117 Volts AC (120 Watts)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of H330

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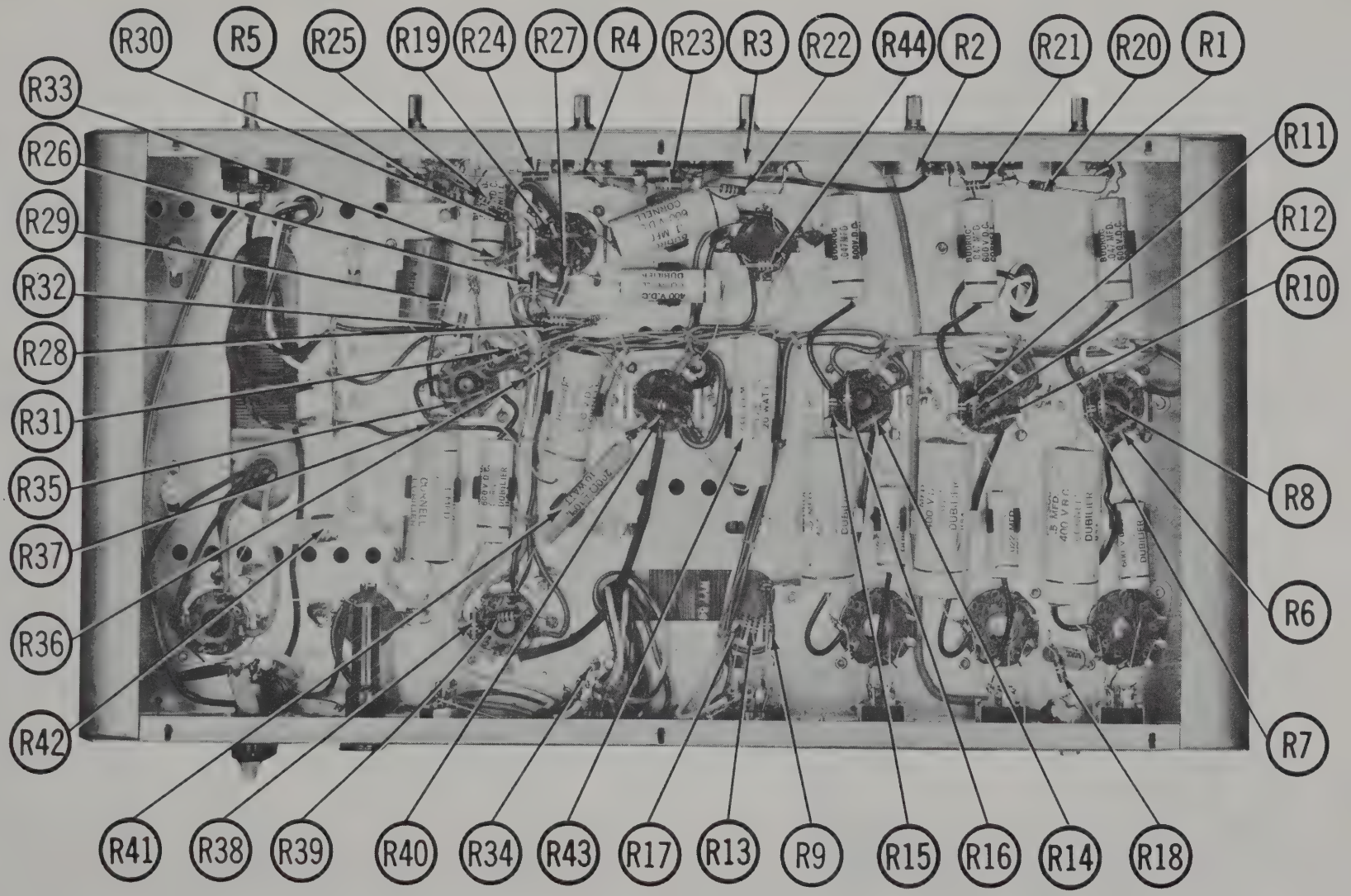
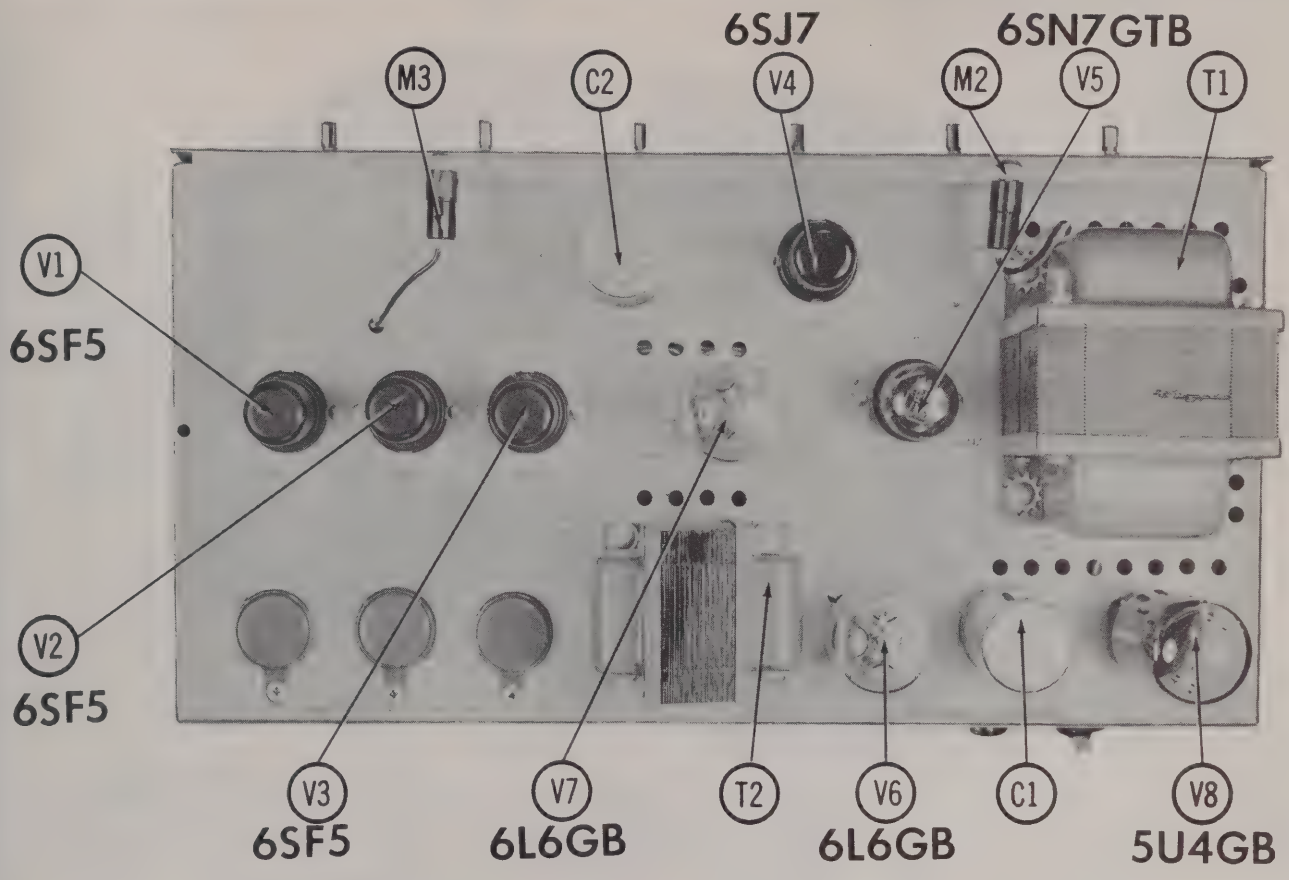
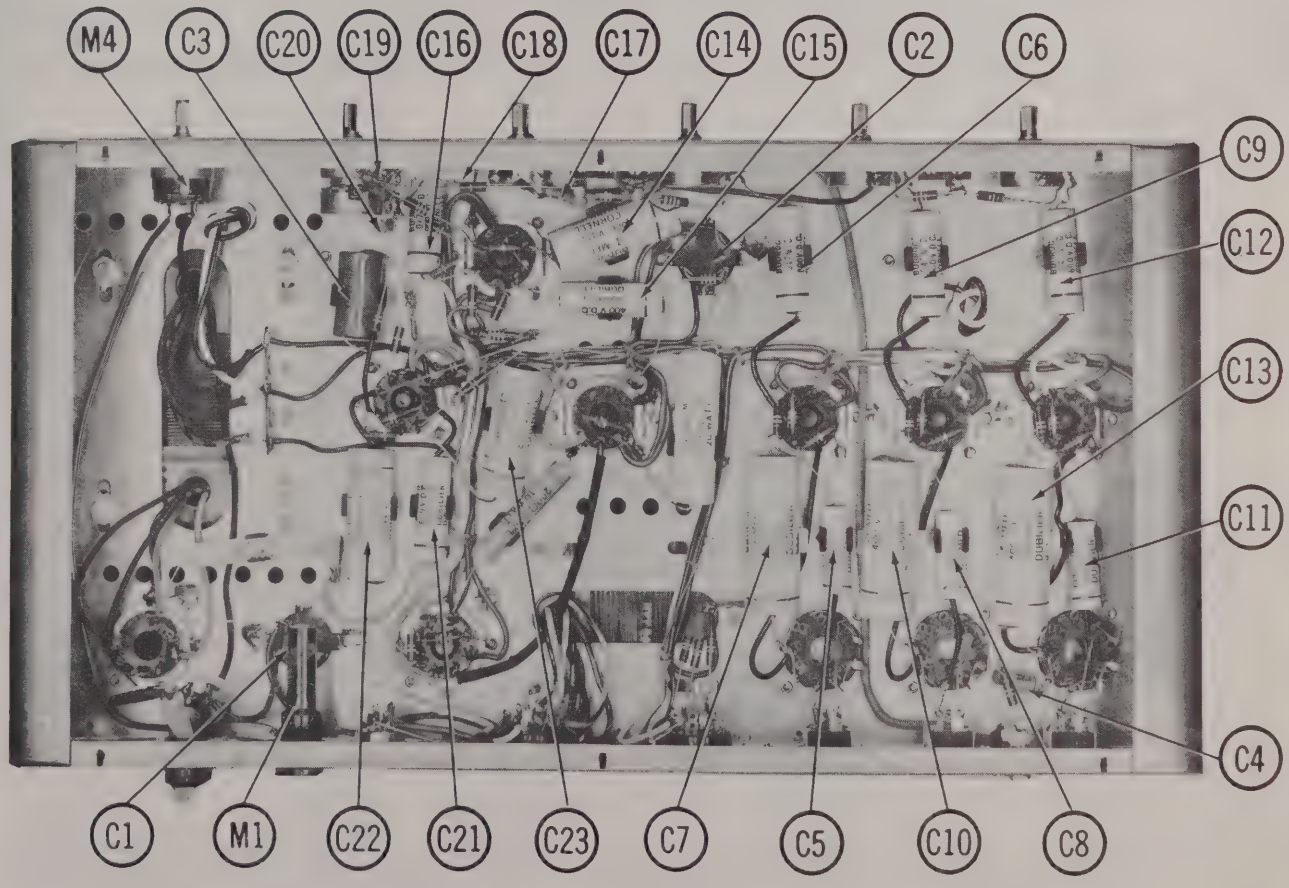
FOLDER 7



CHASSIS-BOTTOM VIEW-RESISTOR IDENTIFICATION



CHASSIS TOP VIEW



CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	MIC 1 Preamplifier	6SF5	
V2	MIC 2 Preamplifier	6SF5	
V3	MIC 3 Preamplifier	6SF5	
V4	AF Amplifier	6SJ7	
V5	AF Amp. -Phase Inv.	6SN7GTB	
V6	Output	6L6GB	
V7	Output	6L6GB	
V8	Rectifier	5U4GB	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	NEWCOMB PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲ 60	500	CE-33	AFH3-53	C0373	WP475.5		T-205	R2409*
B	▲ 10	475	①					MT-4710	
C2A	▲ 20	475	CE-30	AFH4-19-10		FP474.5		Q-070	R2405*
B	■ 10	475				TC30		MT-0525	
C	▲ 10	475							
D	25	50							
C3	25	50	CE-9	PRS50V25	BBR25-50	TC36	TD-25-50	MT-0525	TVA-1306

① Not used in this version
* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	NEWCOMB PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	.004	600	CP-66	P688N-004	D6-402	CUB6D4	GP-4000	GEM-624	6TM-D4	
C5	.022	600	CP-47	P688N-022	DD-203	CUB6S22	ED-02	GEM-6122	6TM-S22	Note 1
C6	.047	600	CP-49	P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C7	.5	400	CP-74	P488N-5		CUB4P5		GEM-405	4TM-P5	
C8	.022	600	CP-47	P688N-022	DD-203	CUB6S22	ED-02	GEM-6122	6TM-S22	Note 1
C9	.047	600	CP-49	P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C10	.5	400	CP-74	P488N-5		CUB4P5		GEM-405	4TM-P5	
C11	.022	600	CP-47	P688N-022	DD-203	CUB6S22	ED-02	GEM-6122	6TM-S22	Note 1
C12	.047	600	CP-49	P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C13	.5	400	CP-74	P488N-5		CUB4P5		GEM-405	4TM-P5	
C14	.1	600	CP-52	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C15	.1	400	CP-51	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C16	.047	600	CP-49	P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C17	470		CM-25	SI470	D6-471	LT6T47	GP-470	UC-5347	5GA-T47	
C18	.004	600	CP-66	P688N-004	D6-402	CUB6D4	GP-4000	GEM-624	6TM-D4	Note 2
C19	1500		CM-27	SI1500	D6-152	LT6D15	GP-1500	UC-5215	5GA-D15	
C20	470		CM-25	SI470	D6-471	LT6T47	GP-470	UC-5347	5GA-T47	
C21	.047	600	CP-49	P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C22	.1	600	CP-52	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C23	.1	600	CP-52	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	

Note 1. Some versions may use .05mfd in this application

Note 2. Some versions may use .004mfd in this application

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	NEWCOMB PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K		RV-41K	B-60	A47-500K-Z	Q13-133	U48	Channel 1 (Mike)
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	500K		RV-41K	B-60	A47-500K-Z	Q-13-133	U48	Channel 2 (Mike)
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	1meg		RV-83K	BT-71	A47F5-1meg	QVC-539X	UT-443	Channel 3 (Phono-Mike)
								Tap @ 500K
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R4	6meg		RV-60K					Treble, Tap @ 500K
R5A	5meg		RV-57K					Bass
R5B	5meg							Bass

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		NEWCOMB PART No.	NOTES
	OHMS	WATT		
R6	18meg		RR-140	
R7	270K		RR-31	
R8	270K		RR-31	
R9	180K		RR-29	
R10	18meg		RR-140	
R11	270K		RR-31	
R12	270K		RR-31	
R13	180K		RR-29	
R14	18meg		RR-140	
R15	270K		RR-31	
R16	270K		RR-31	
R17	180K		RR-29	
R18	100K		RR-27	
R19	10meg		RR-46	
R20	330K		RR-32	
R21	330K		RR-32	
R22	330K		RR-32	
R23	270K		RR-31	
R24	2.7meg		RR-41	
R25	330K		RR-32	
R26	560K		RR-34	
R27	2.2meg		RR-40	
R28	33K		RR-23	
R29	100K		RR-27	
R30	680K		RR-35	
R31	100K		RR-27	
R32	2200Ω		RR-10	
R33	220Ω		RR-2	
R34	3300Ω		RR-12	
R35	560K		RR-34	
R36	100K		RR-27	
R37	2700Ω		RR-11	
R38	270K		RR-31	
R39	33K		RR-23	
R40	270K		RR-31	
R41	200Ω	10	RR-100	
R42	2250Ω	10	RR-126	
R43	10K	20	RR-127	
R44	33K		RR-23	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	NEWCOMB PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @1.1A	720VCT @.170A	5V @ 3A	6.3VCT @ 6A	TR-201				22R07	R-18A

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	NEWCOMB PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	4500Ω CT	500Ω Tap @ 250Ω 70V, 16Ω 8Ω, & 4Ω	TR-137						

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			NEWCOMB PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	2A 250V	FA-5		312002. (3AG 2A 250V)	341001	AGC2	HKP

MISCELLANEOUS

ITEM No.	PART NAME	NEWCOMB PART No.	NOTES
M2	Pilot Lamp	DL-5	#51
M3	Pilot Lamp	DL-5	#51
M4	Switch	SY-81	Power On-Off (SPST)

PARTS LIST AND DESCRIPTIONS (Continued)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	KA-15K	Ivory (6 used)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

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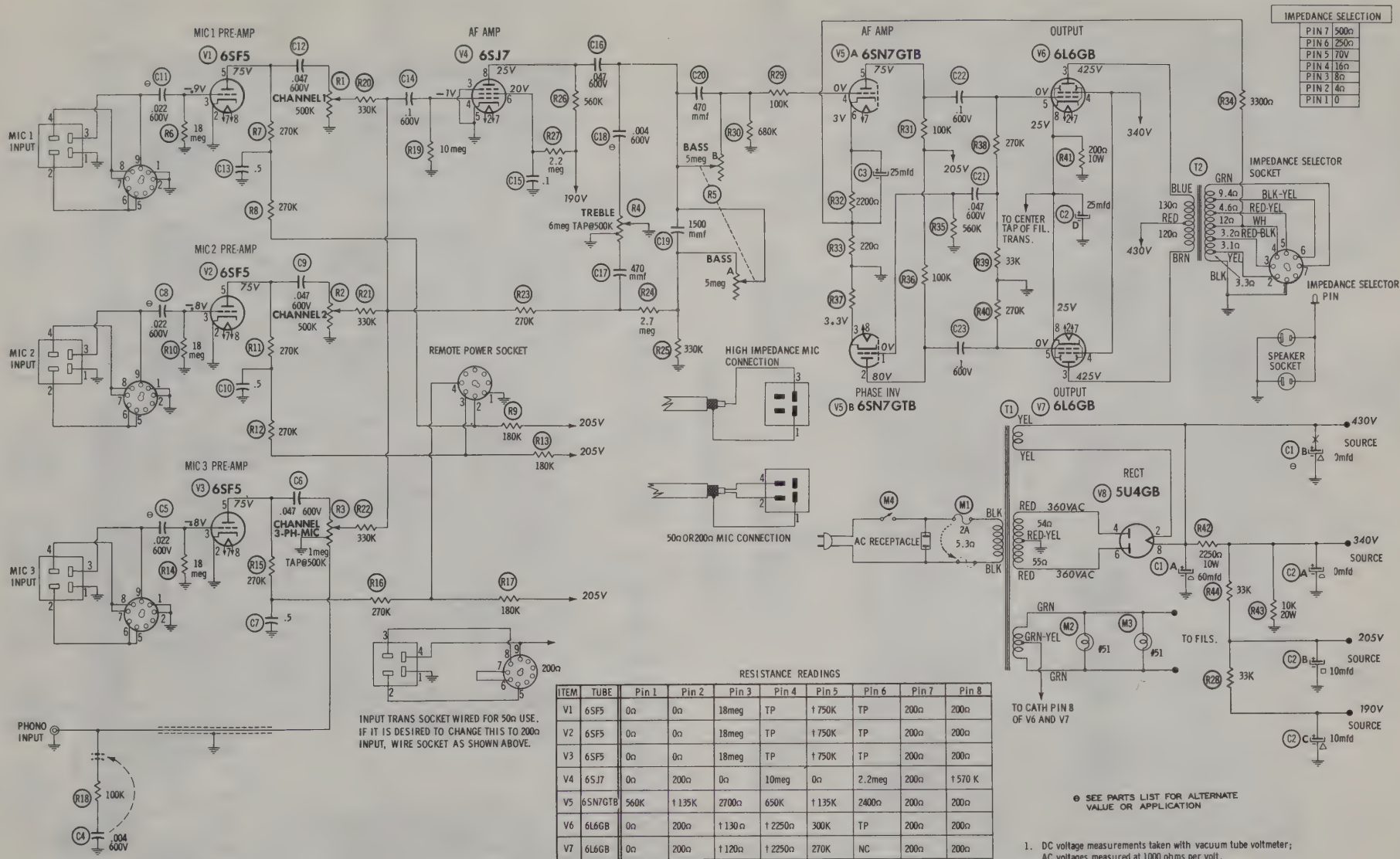
3924 MEADE St.
DENVER, COLORADO



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	6SF5	0Ω	0Ω	18meg	TP	†750K	TP	200Ω	200Ω
V2	6SF5	0Ω	0Ω	18meg	TP	†750K	TP	200Ω	200Ω
V3	6SF5	0Ω	0Ω	18meg	TP	†750K	TP	200Ω	200Ω
V4	6SJ7	0Ω	200Ω	0Ω	10meg	0Ω	2.2meg	200Ω	†570 K
V5	6SN7GTB	560K	†135K	2700Ω	650K	†135K	2400Ω	200Ω	200Ω
V6	6L6GB	0Ω	200Ω	†130Ω	†2250Ω	300K	TP	200Ω	200Ω
V7	6L6GB	0Ω	200Ω	†120Ω	†2250Ω	270K	NC	200Ω	200Ω
V8	5U4GB	0Ω	20K(min)	NC	54Ω	NC	55Ω	NC	20K(min)

† MEASURED FORM PIN 8 OF V8
NC NO CONNECTION
TP TIE POINT

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

OLYMPIC MODEL "Kobold" 5720W

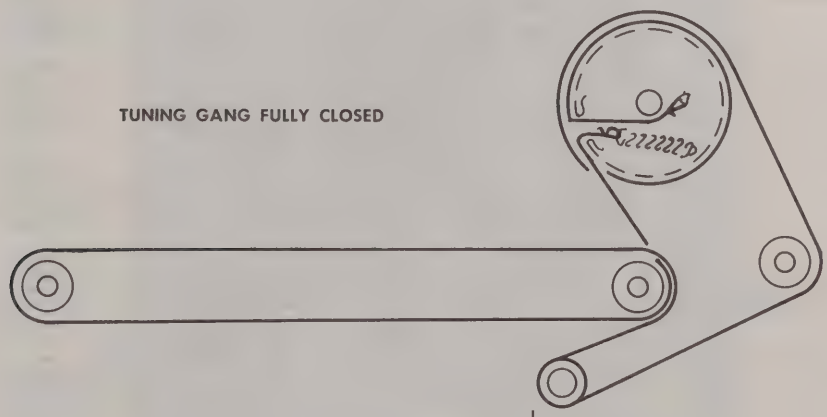
PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLO.

OLYMPIC MODEL
"Kobold" 5720W

TRADE NAME	Olympic Model "Kobold" 5720W		
MANUFACTURER	Olympic Radio & Tel. Corp., 34-01 38th Ave., Long Island City 1, N. Y.		
TYPE SET	AC Operated FM-AM Receiver		
TUBES (Five)	Types 6AQ8/ECC85 FM RF Amp. - FM Conv., 6AJ8/ECH81 1st FM IF Amp. - AM Mixer-AM Osc., EBF89 2nd FM IF Amp. - AM IF Amp. - AM Det. - AVC, 6BM8/ECL82 AF Amp. - Output, 6V4/EZ80 Rectifier		
POWER SUPPLY	110-120 Volts AC - 60 Cycles	RATING	.48 Amp. @ 117 Volts AC (46 Watts)
TUNING RANGE—BROADCAST	535-1620KC	FREQ. MOD.	88-108MC

OLYMPIC MODEL
"Kobold" 5720W

TUNING GANG FULLY CLOSED

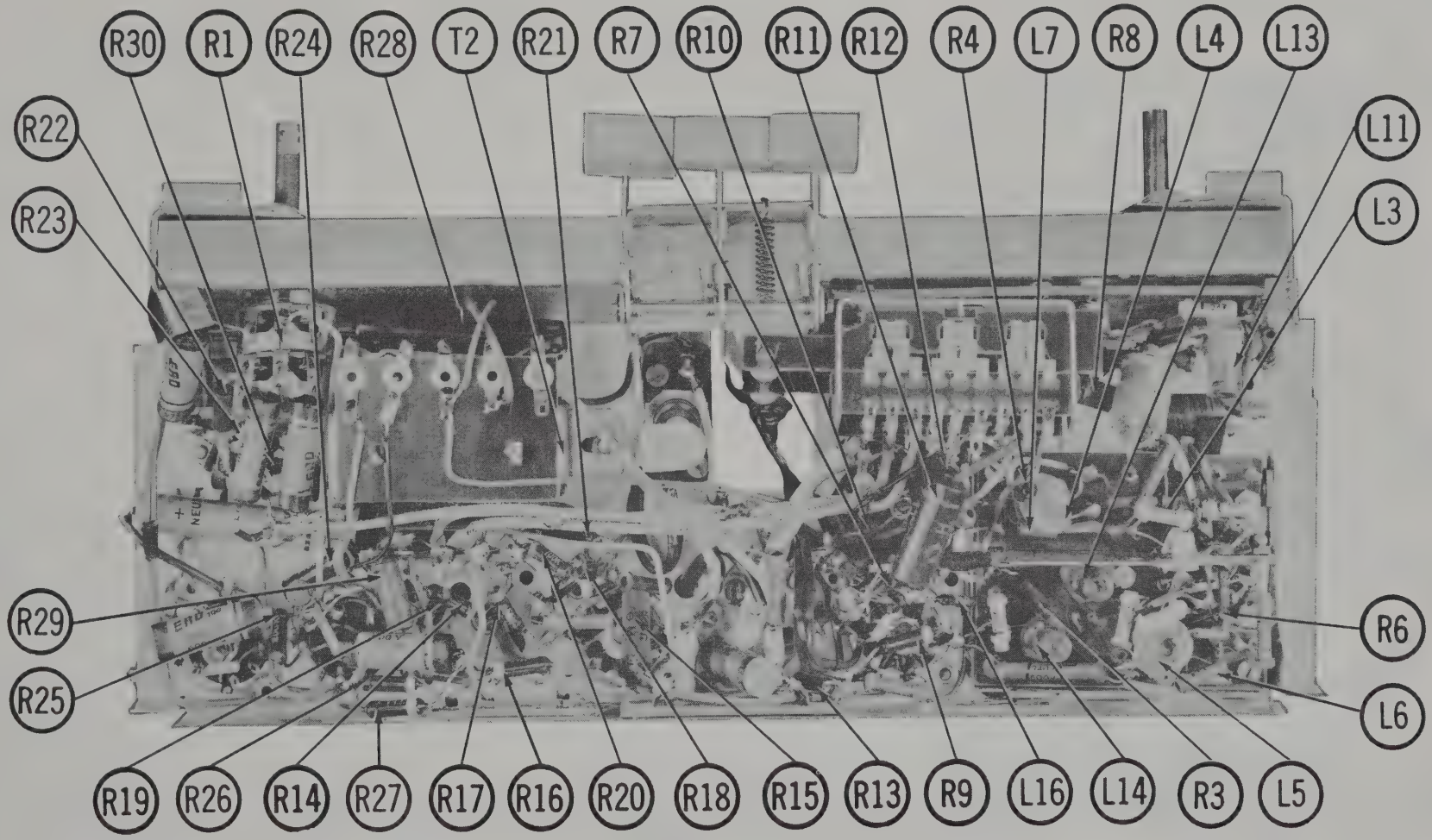


2½ TURNS

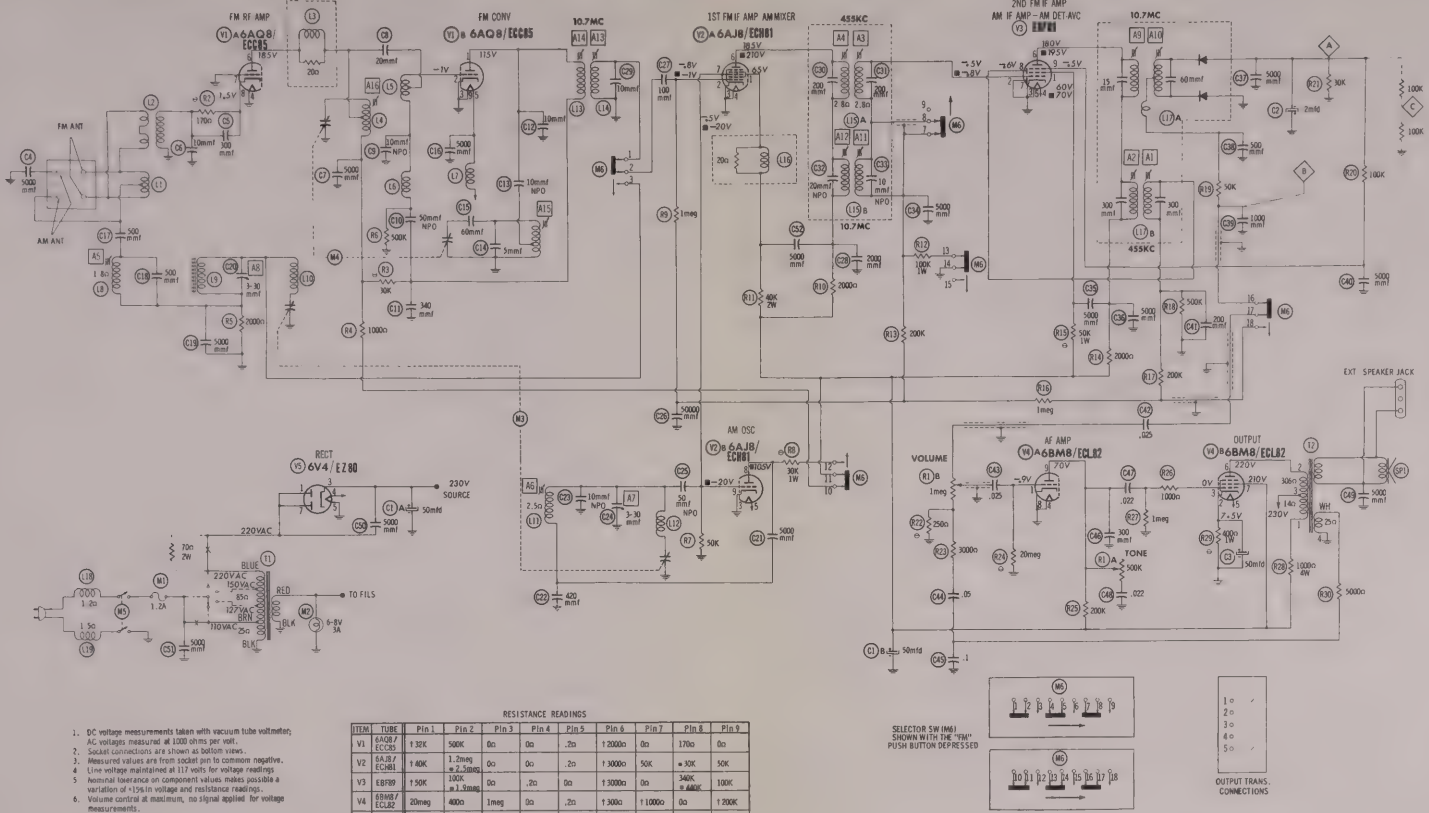
DIAL CORD STRINGING

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC

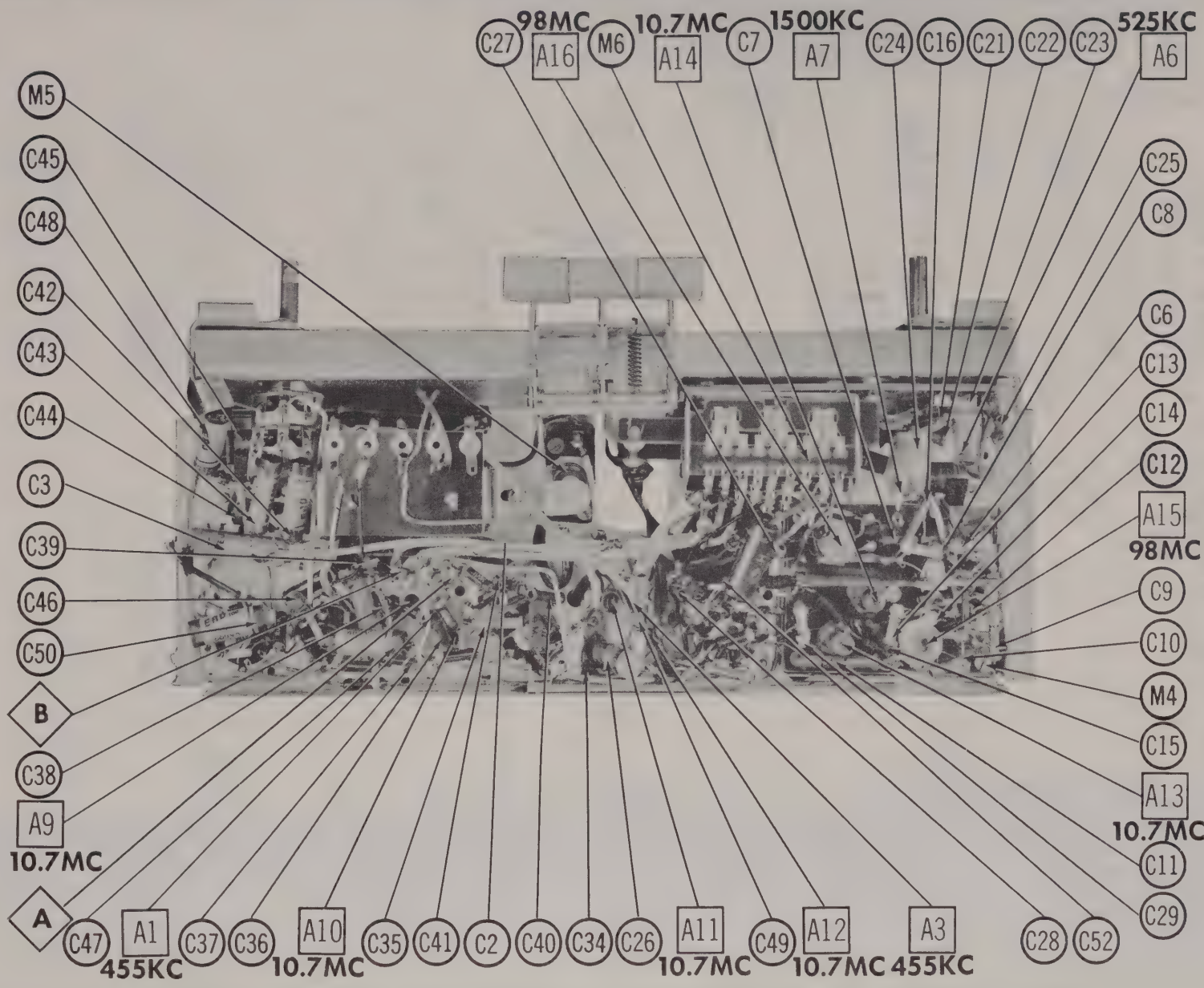
RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AQ8/ ECC85	↑32K	500K	0Ω	0Ω	.2Ω	↑2000Ω	0Ω	170Ω	0Ω
V2	6AJ8/ ECH81	↑40K	1.2meg ⊕ 2.5meg	0Ω	0Ω	.2Ω	↑3000Ω	50K	⊕ 30K	50K
V3	EBF89	↑50K	100K ⊕ 1.9meg	0Ω	.2Ω	0Ω	↑3000Ω	0Ω	340K ⊕ 460K	100K
V4	6BM8/ ECL82	20meg	400Ω	1meg	0Ω	.2Ω	↑300Ω	↑1000Ω	0Ω	↑200K
V5	6V4/ EZ80	95Ω	NC	20K(Min)	.2Ω	0Ω	NC	95Ω	NC	NC

ALL MEASUREMENTS TAKEN IN FM POSITION UNLESS OTHERWISE DESIGNATED
⊕ MEASURED IN AM POSITION
↑ MEASURED FROM PIN 3 OF V5
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

390-8



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

PROPERTY OF
L. F. BLANKENSHIP
3901 MYRTLE St.
DENVER, COLORADO

OLYMPIC
MODEL "KOBOLD" 5720W

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	200Ω in series with 200mmf	To AM Antenna terminals with dummy in high side.	455KC (400∿ Mod)	AM	600KC	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	"	"	"	"	"	"	A5	Adjust for MINIMUM output.
3.	"	"	525KC	"	525KC	"	A6	Adjust for maximum output.
4.	"	"	1500KC	"	1500KC	"	A7, A8	Adjust for maximum output. Repeat steps 3 & 4 until no further improvement is obtained.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100K (±1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
5.	200mmf	High side to pin 2 (grid) of EBF89 (V3). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A9	Adjust for maximum deflection.
6.	"	"	"	"	"	DC probe to point Ⓑ. Common to point Ⓒ.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
7.	"	High side to pin 2 (grid) of 6AJ8/ECH81 (V2). Low side to chassis.	"	"	"	DC probe to point Ⓐ. Common to chassis.	A11, A12	Adjust for maximum deflection.
8.	Direct	Ungrounded tube shield on 6AQ8/ECC85 (V1). Low side to chassis.	"	"	"	"	A13, A14	Adjust for maximum deflection.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR & OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
5.	200mmf	High side to pin 2 (grid) of EBF89 (V3). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point Ⓐ. Low side to chassis.	A9	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
6.	"	"	"	"	"	Vert. Amp. to point Ⓑ. Low side to chassis.	A10	Reconnect stabilizing capacitor C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A9 for maximum amplitude and straightness of crossover lines.
7.	"	High side to pin 2 (grid) of 6AJ8/ECH81 (V2). Low side to chassis.	"	"	"	Vert. Amp. to point Ⓐ. Low side to chassis.	A11, A12	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
8.	Direct	High side to ungrounded tube shield on 6AQ8/ECC85 (V1). Low side to ground.	"	"	"	"	A13, A14	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1. Reconnect stabilizing capacitor C2.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
9.	Two 120Ω Carbon Resistors	To FM Antenna terminals with 120Ω in each lead.	98MC	FM	98MC	DC probe to point Ⓐ. Common to chassis.	A15, A16	Adjust for maximum deflection.

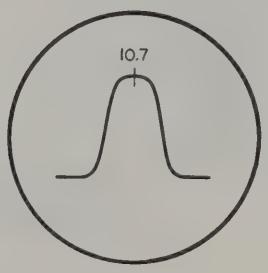


FIG. 1

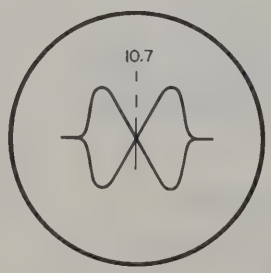


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	FM RF Amp. - FM Conv.	6AQ8/ECC85
V2	1st FM IF Amplifier- AM Mixer - AM Osc.	6AJ8/ECH81
V3	2nd FM IF Amplifier- AM IF Amp.-AM Det.-AVC	EBF89
V4	AF Amp. - Output	6BM8/ECL82
V5	Rectifier	6V4/EZ80

ELECTROLYTIC CAPACITORS

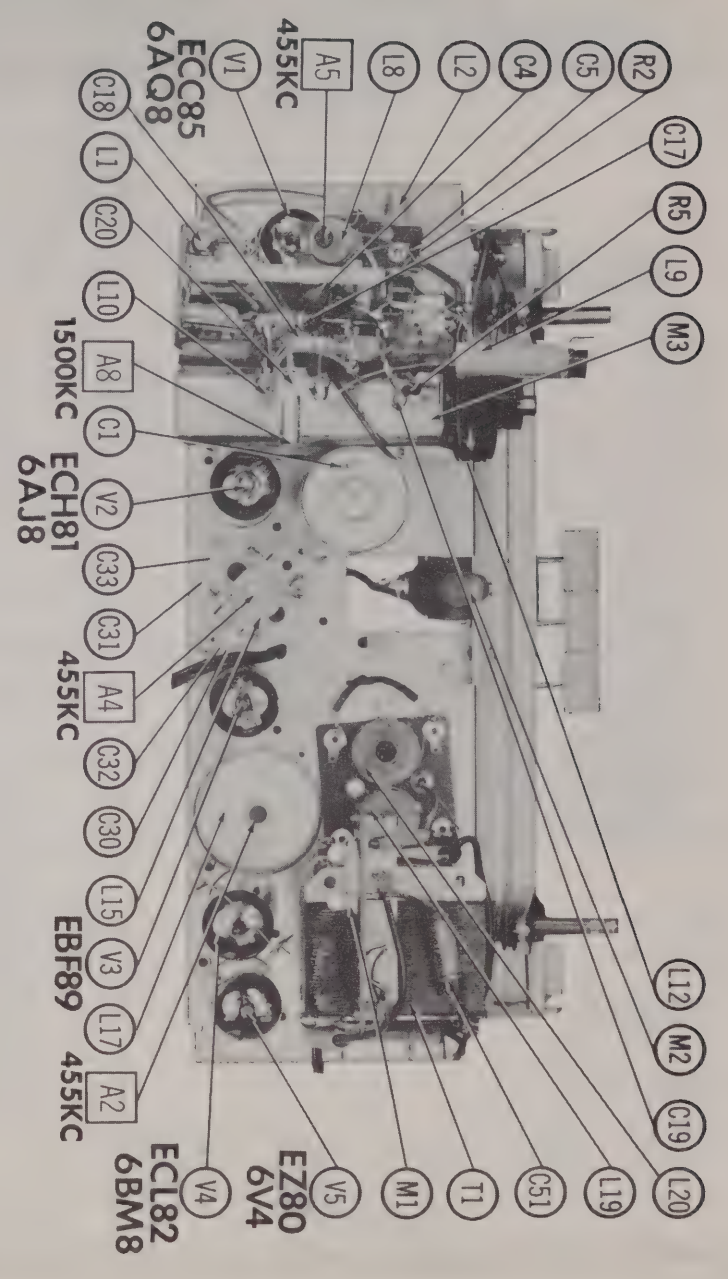
ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA OLYMPIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	385							
B	50	385							
C2	2	110		PRS450V2	BR245		TD-2-450	MT-4502	TVA-1701
C3	50	35		PRS50V50	BR505	TC39	TD-50-50	MT-0550	TVA-1308

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA OLYMPIC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5HK-D5	
C5	300			SI 300	D6-301	LT6T3	GP-300	UC-533	5GA-T3	
C6	10			SI 10	D6-100	LT6Q1	GP-10	UC-541	5GA-Q1	
C7	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5HK-D5	
C8	20			SI 20	D6-200		GP-20		5GA-Q2	
C9	10			NPO-SI 10	TCZ-10	CTA6Q1C	TCO-10	ZT-541	5TCC-Q1	NPO
C10	50			NPO-SI 50	TCZ-50	CTA6Q5C	TCO-50	ZT-545	5TCC-Q5	NPO
C11	340									
C12	10			SI 10	D6-100	LT6Q1	GP-10	UC-541	5GA-Q1	
C13	10			NPO-SI 10	TCZ-10	CTA6Q1C	TCO-10	ZT-541	5TCC-Q1	NPO
C14	5									
C15	60									
C16	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5HK-D5	
C17	500			SI 500	D6-501	LT6T5	GP-500	UC-535	5GA-T5	
C18	500			SI 500	D6-501	LT6T5	GP-500	UC-535	5GA-T5	
C19	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5HK-D5	
C20	3-30									
C21	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5HK-D5	
C22	420									
C23	10			NPO-SI 10	TCZ-10	CTA6Q1C	TCO-10	ZT-541	5TCC-Q1	NPO
C24	3-30									
C25	50			NPO-SI 50	TCZ-50		TCO-50	ZT-545	5TCC-Q5	NPO
C26	50000									
C27	100			SI 100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C28	2000			SI 2000	D6-202	LT6D2	GP-2000	UC-522	5HK-D2	
C29	10			SI 10	D6-100	LT6Q1	GP-10	UC-541	5GA-Q1	
C30	200			SI 200	D6-201	LT6T2	GP-200	UC-532	5GA-T2	
C31	200			SI 200	D6-201	LT6T2	GP-200	UC-532	5GA-T2	
C32	20			NPO-SI 20	TCZ-20	CTA6Q2C	TCO-20	ZT-542	5TCC-Q2	NPO
C33	10			NPO-SI 10	TCZ-10	CTA6Q1C	TCO-10	ZT-541	5TCC-Q1	NPO
C34	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5HK-D5	
C35	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5HK-D5	
C36	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5HK-D5	
C37	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5HK-D5	
C38	500			SI 500	D6-501	LT6T5	GP-500	UC-535	5GA-T5	
C39	1000			SI 1000	D6-102	LT6D1	GP-1000	UC-521	5HK-D1	
C40	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5HK-D5	
C41	200			SI 200	D6-201	LT6T2	GP-200	UC-532	5GA-T2	
C42	.025	250		P488N-022	DD-203	LT6S25	ED-02	GEM-4125	4TM-S25	
C43	.025	250		P488N-022	DD-203	LT6S25	ED-02	GEM-4125	4TM-S25	
C44	.05	250		BPD-05		CUB4S5		GEM-415	4TM-S5	
C45	.1	250		P488N-1		CUB4P1		GEM-401	4TM-P1	
C46	300			SI 300	D6-301	LT6T3	GP-300	UC-533		
C47	.022	250		P488N-022	DD-203	LT6S22	ED-02	GEM-4122	4TM-S22	
C48	.022	250		P488N-022	DD-203	LT6S22	ED-02	GEM-4122	4TM-S22	
C49	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5HK-D5	
C50	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5HK-D5	
C51	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5HK-D5	
C52	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5HK-D5	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	OLYMPIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A B	500K lmeg	½ ½	PTG25100					Tone Volume

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		OLYMPIC PART No.	NOTES
	OHMS	WATT		
R2	170Ω			Note 1
R3	30K			Note 1
R4	1000Ω			
R5	2000Ω			
R6	500K			
R7	50K			
R8	30K	1		Note 1
R9	lmeg			
R10	2000Ω			
R11	40K	2		
R12	100K	1		
R13	200K			
R14	2000Ω			
R15	50K	1		Note 1
R16	lmeg			

ITEM No.	RATING		OLYMPIC PART No.	NOTES
	OHMS	WATT		
R17	200K			
R18	500K			
R19	50K			
R20	100K			
R21	30K			
R22	250Ω			Note 1
R23	3000Ω			
R24	20meg			Note 1
R25	200K			
R26	1000Ω			
R27	lmeg			
R28	1000Ω	4		
R29	400Ω	1		Note 1
R30	5000Ω			

Note 1. Special Low Noise Carbon Deposited Resistor

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .48A	220V @ .062A	6.3V @ 2.7A		TRG25073					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.1	OLYMPIC PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	4500Ω Tap @ 19Ω	3-4Ω	TRG25075						
	Turns Ratio								
	PRI.	SEC.2							
	3:	1							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	OLYMPIC PART No.	QUAM PART No.	
SP1	4" X 6"	PM	3-4Ω	SKG25101	46A15 ①	① Drill two mounting holes.

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		OLYMPIC PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	FM Ant. Coil					
L2	FM Ant. Trans.					
L3	RF Choke					Wound on 20Ω Resistor
L4	FM RF Coil					
L5A	FM RF Coil					
B	FM Osc. Coil					
L6	RF Choke					2.2 Microhenries
L7	Fil. Choke					2.2 Microhenries
L8	AM Ant. Coil					
L9	Loop Stick					
L10	RF Choke					2.2 Microhenries
L11	AM Osc. Coil					
L12	RF Choke					2.2 Microhenries
L13	1st FM IF Pri.					
L14	1st FM IF Sec.					
L15A	1st AM IF					
B	2nd FM IF					
L16	RF Choke					Wound on 20Ω Resistor
L17A	Discriminator					Includes Crystal Diodes
B	2nd AM IF					
L18	Line Choke					83 Microhenries
L19	Line Choke					170 Microhenries

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			OLYMPIC PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1		1.2A	FUG25037					

MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
M2	Dial Lamp	BUG25035	6-8V, .3A
M3	Tuning Cap	CVG25084	AM, 2 Gang (Ant. 12-565mmf, Osc. 12-565mmf)
M4	FM Unit	CVG25076	Input Sub Assembly, Complete
M5	Switch	SWG25097	On-Off (Push Type)
M6	Switch	SWG25129	AM-FM Selector (Slide Type)
	Keyboard	PBG25083	Piano (Mechanical Unit)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	KNG25103	Small, Gold Insert
Knob	KNG25105	Large
Cabinet	CAG25069	Specify Color
Dial Scale	DLG25091	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting)..... Use BELDEN No. 8401

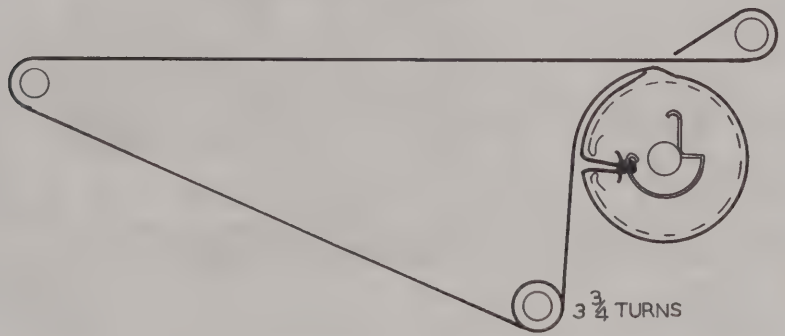
PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

RCA VICTOR MODEL
8-RF-13 (Ch. RC-1168A)

RCA VICTOR MODEL
8-RF-13 (Ch. RC-1168A)

TRADE NAME	RCA Victor Model 8-RF-13 (CH. RC-1168A)		
MANUFACTURER	RCA Victor Radio and "Victrola" Div., Radio Corp. of America, Camden 8, N. J.		
TYPE SET	AC Operated FM-AM Receiver		
TUBES	Thirteen		
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING	.72 Amp. @ 117 Volts AC (75Watts)
TUNING RANGE-BROADCAST	540-1600KC	FREQUENCY MOD.	88-108MC

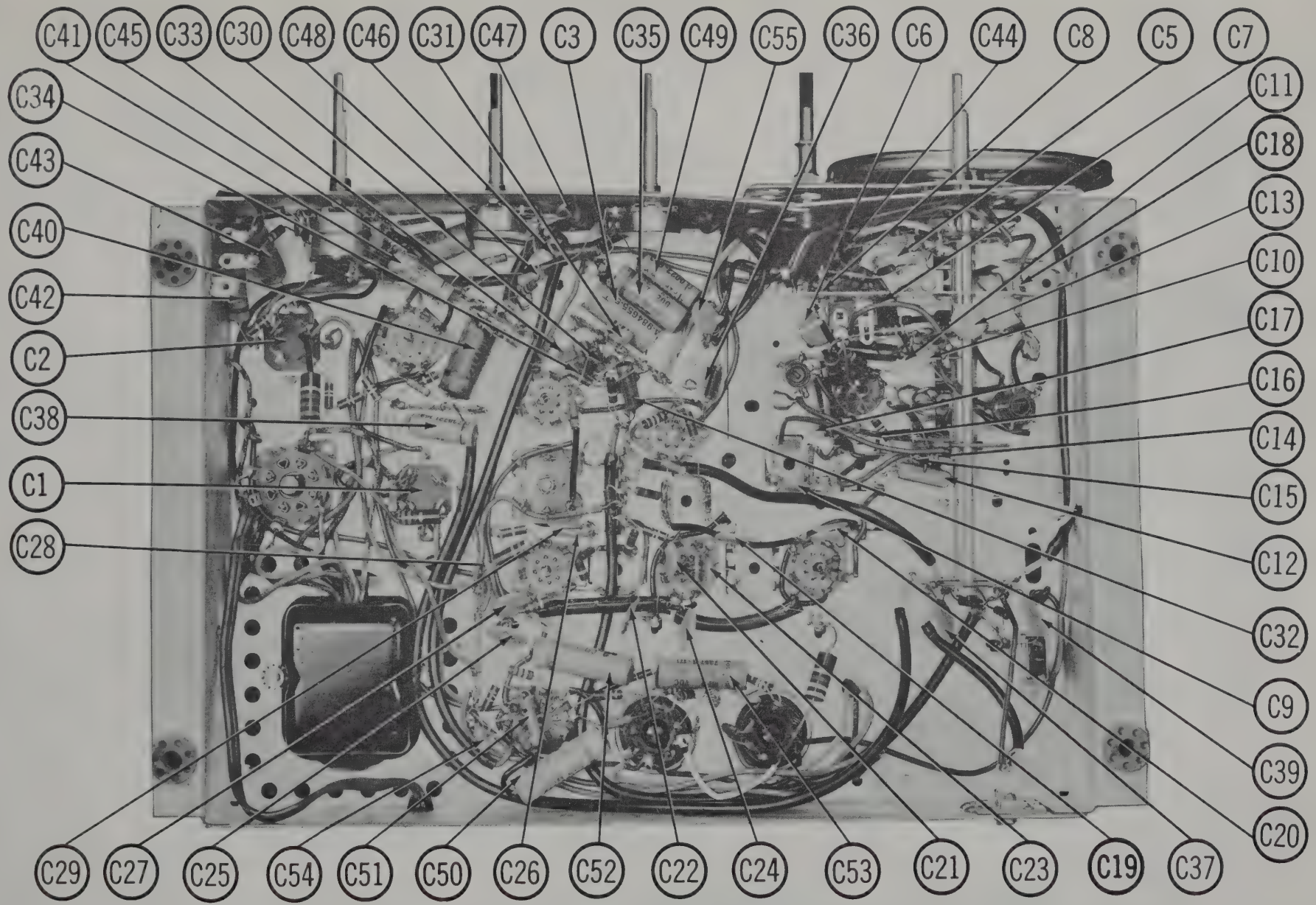
TUNING GANG FULLY CLOSED



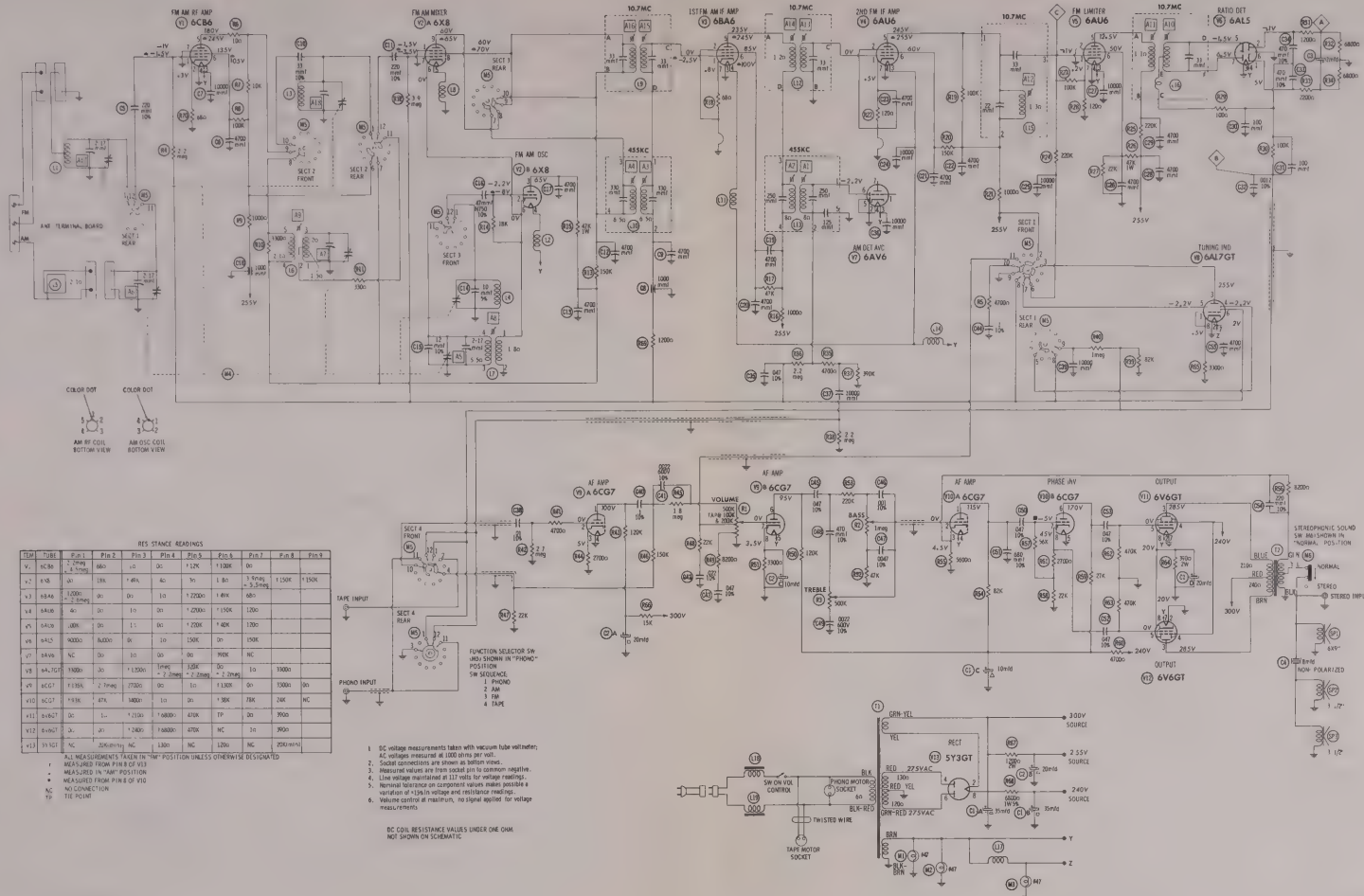
DIAL CORD STRINGING

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



RESISTANCE READINGS

TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
6CB6	1.7meg < 4.5meg	660	∞	0Ω	↑12K	↑100K	0Ω		
6X8	0Ω	18K	↑ 49K	4Ω	9Ω	1.8Ω	5 meg > 3.5meg	↑150K	↑150K
6X8	1000Ω < 2.5meg	0Ω	0Ω	1Ω	↑ 2700Ω	↑ 49K	680		
6BA6	6Ω	0Ω	1Ω	0Ω	↑ 2700Ω	↑150K	120Ω		
6AU6	100K	0Ω	1Ω	0Ω	↑ 220K	↑ 40K	120Ω		
6AL5	90000Ω	8000Ω	0Ω	1Ω	150K	0Ω	150K		
6AV6	NC	0Ω	1Ω	0Ω	0Ω	390K	NC		
6AL7GT	1300Ω	0Ω	↑ 1350Ω	1meg < 2.2meg	330K < 2.2meg	0Ω	1Ω	3300Ω	
6CG7	↑ 135K	2.7meg	27200Ω	0Ω	1Ω	↑ 130K	0Ω	1300Ω	0Ω
6CG7	↑ 93K	47K	1400Ω	1Ω	0Ω	↑ 38K	75K	24K	NC
6V6GT	0Ω	1Ω	↑ 210Ω	↑ 68000Ω	470K	TP	0Ω	390Ω	
6V6GT	0Ω	1Ω	↑ 240Ω	↑ 68000Ω	470K	NC	1Ω	390Ω	
5Y3GT	NC		330Ω(min)	NC	330Ω	NC	120Ω	NC	250Ω(min)

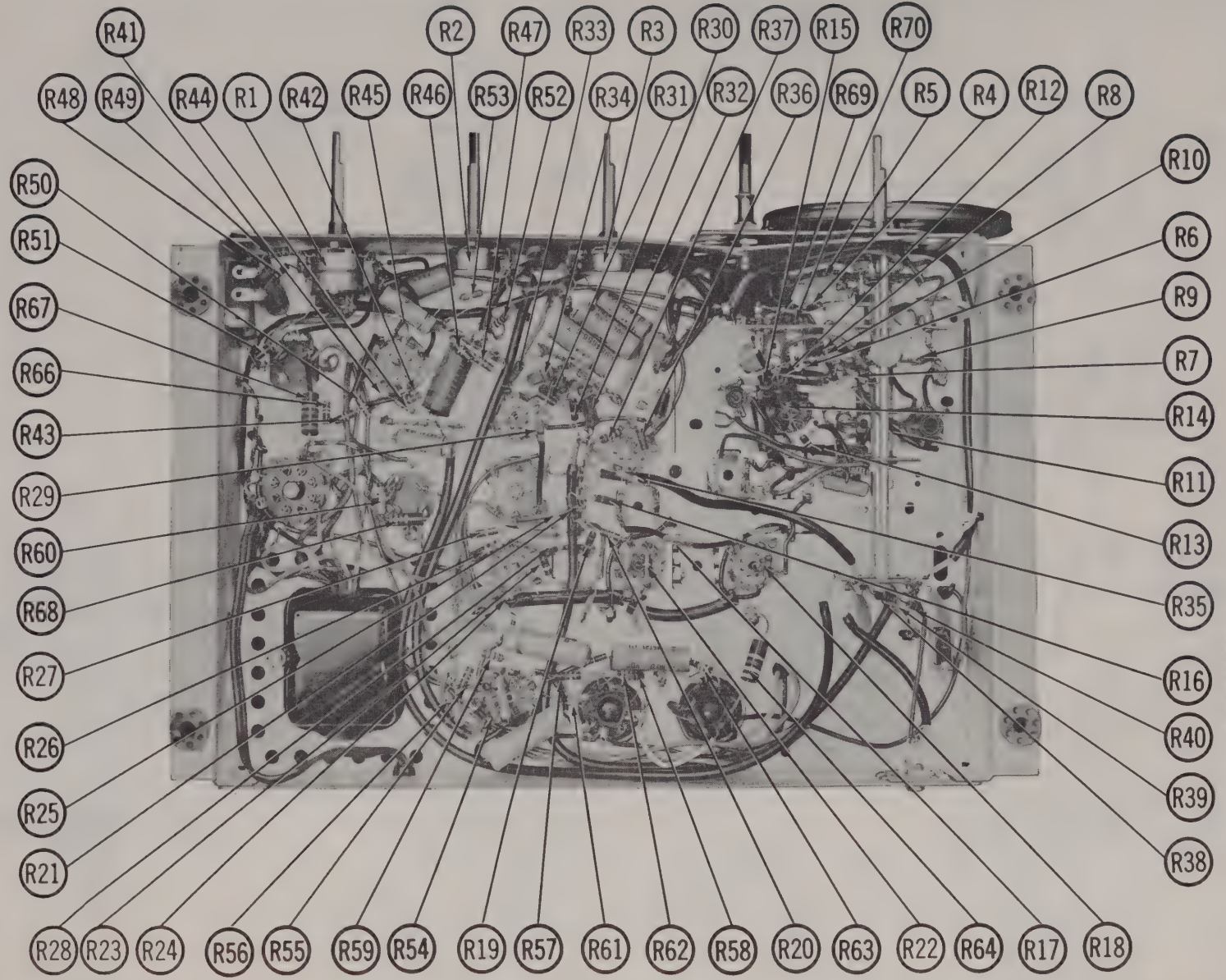
ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
↑ MEASURED FROM PIN 8 OF V13
< MEASURED IN "AM" POSITION
> MEASURED FROM PIN 8 OF V10
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

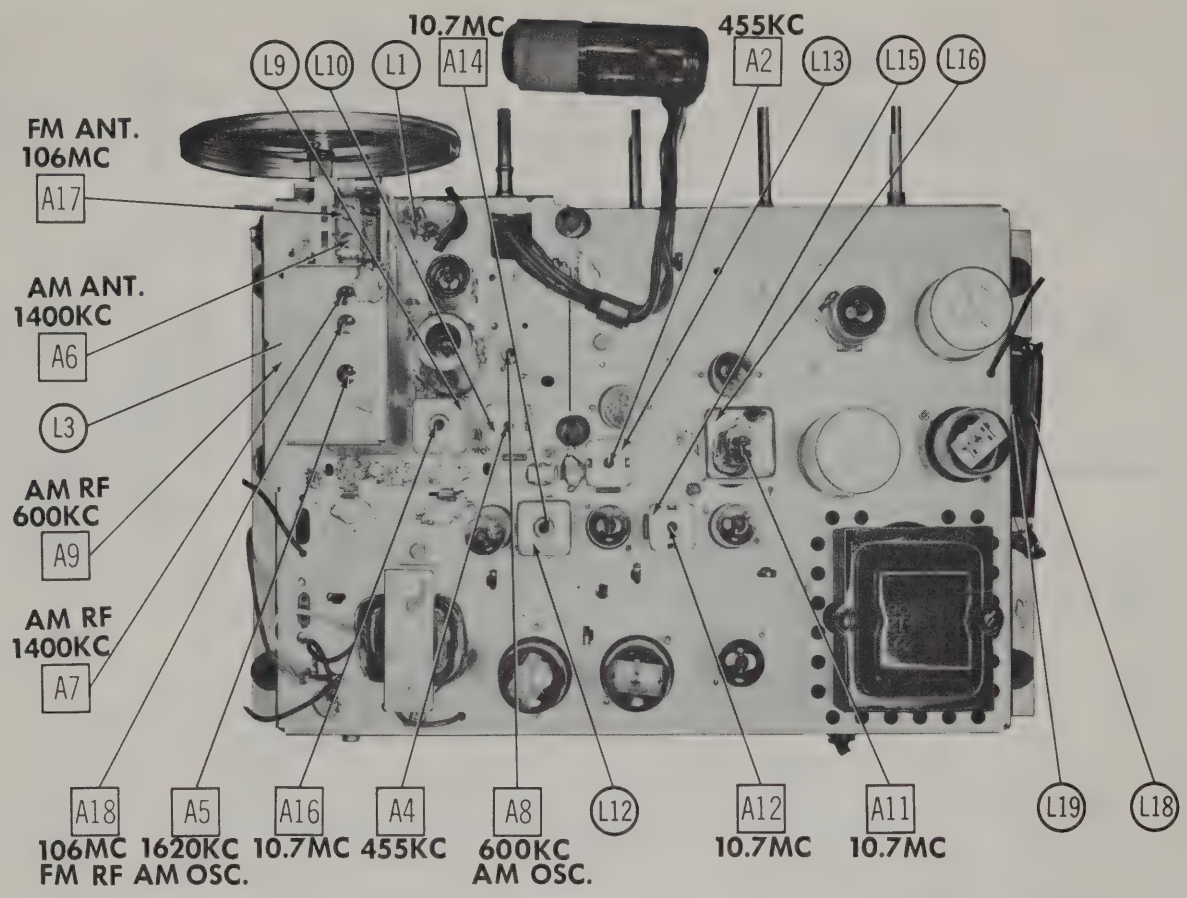
390-9



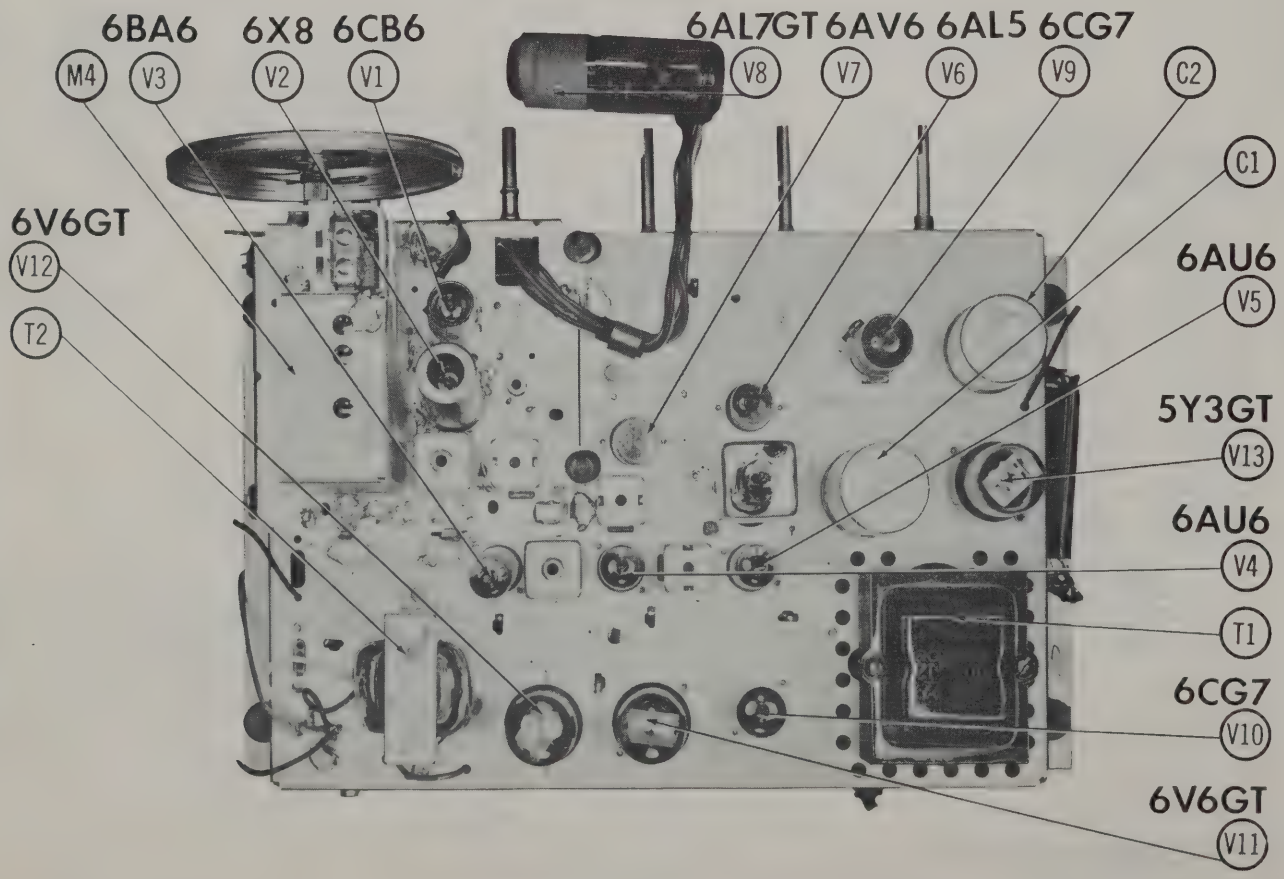
CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

RCA VICTOR
MODEL 8-RF-13 (Ch. RC-1168A)



CHASSIS TOP VIEW - ALIGNMENT IDENTIFICATION



CHASSIS TOP VIEW - TUBE IDENTIFICATION

ALIGNMENT INSTRUCTIONS

PREALIGNMENT INSTRUCTIONS

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Set tone controls to their mid-range.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01mfd	High side to pin 1 (grid) of 6BA6 (V3). Low side to chassis.	455KC (400% Mod.)	AM	Point of non interference near low freq. end of dial.	Across voice coil.	A1, A2	Adjust for maximum deflection.
2.	.01mfd	High side to AM RF stator lug on tuning gang. Low side to chassis.	"	"	"	"	A3, A4	"
3.		High side to AM Ant. terminal. Low side to chassis.	1620KC	"	Tuning gang fully open.	"	A5	"
4.		"	1400KC	"	Tune to 1400KC signal	"	A6, A7	"
5.		"	600KC	"	Tune to 600KC signal	"	A8	Shunt AM RF tuning section with 10K resistor. Adjust for maximum deflection while rocking tuning gang.
6.		"	"	"	"	"	A9	Remove shunt. Adjust for maximum deflection. Repeat steps 3, 4, 5, and 6.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

If necessary, shunt primary of L12 with a 270Ω resistor while adjusting A13; shunt L12 secondary while adjusting A14; shunt primary of L9 while adjusting A15; shunt L9 secondary while adjusting A16.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
7.	.01mfd	High side to pin 1 (grid) of 6AU6 (V5). Low side to chassis.	10.7MC	FM	Point of non interference near low freq. end.	DC probe to point Ⓐ. Common to chassis.	A10	Adjust signal generator to give 6 volts on meter. Adjust for maximum deflection.
8.	"	"	"	"	"	DC probe to point Ⓑ. Common to chassis	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
9.	"	High side to pin 1 (grid) of 6BA6 (V3). Low side to chassis.	"	"	"	DC probe to point Ⓒ. Common to chassis.	A12, A13 A14	Disconnect Capacitor C25. Adjust for maximum deflection. Correct adjustment is with cores farthest apart.
10.	"	High side to FM RF stator lug on tuning gang. Low side to chassis.	"	"	"	"	A15, A16	"

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizonial deflection.
If necessary, shunt primary of L12 with a 270Ω resistor while adjusting A13; shunt L12 secondary while adjusting A14; shunt primary of L9 while adjusting A15; shunt L9 secondary while adjusting A16.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
7.	.01mfd	High side to pin 1 (grid) of 6AU6 (V5). Low side to chassis.	10.7MC (450KC Sweep)	FM	Point of non interfernece near low freq. end.	Vert. Amp. to point Ⓐ. Low side to chassis.	A10	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1
8.	"	"	"	"	"	Vert. Amp. to point Ⓑ. Low side to chassis.	A11	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2 SLIGHTLY retouch A10 for maximum amplitude and straightness of cross-over lines.
9.	"	High side to pin 1 (grid) of 6BA6 (V3). Low side to chassis.	"	"	"	Vert. Amp to point Ⓒ. Low side to chassis.	A12, A13 A14	Disconnect Capacitor C25. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1 Correct adjustment is with cores farthest apart.
10.	"	High side to FM RF stator lug on tuning gang. Low side to chassis.	"	"	"	"	A15, A16	"

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
11.	Two 120Ω resistors.	Across FM Ant. terminals with resistor in each lead.	90MC	FM	90MC	DC probe to point Ⓒ. Common to chassis.	L4	Adjust for maximum deflection by compressing or expanding coil turns. Replace shield.
12.	"	"	106MC	"	106MC	"	A17, A18	Adjust for maximum deflection.
13.	"	"	90MC	"	90MC	"	L1, L3	Adjust for maximum deflection by compressing or expanding coil turns. Repeat steps 11, 12, and 13 until no further improvement is noted. Reconnect Capacitor C25.

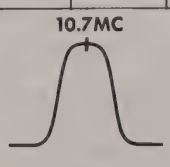


FIG.1

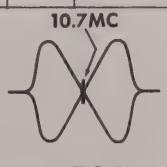
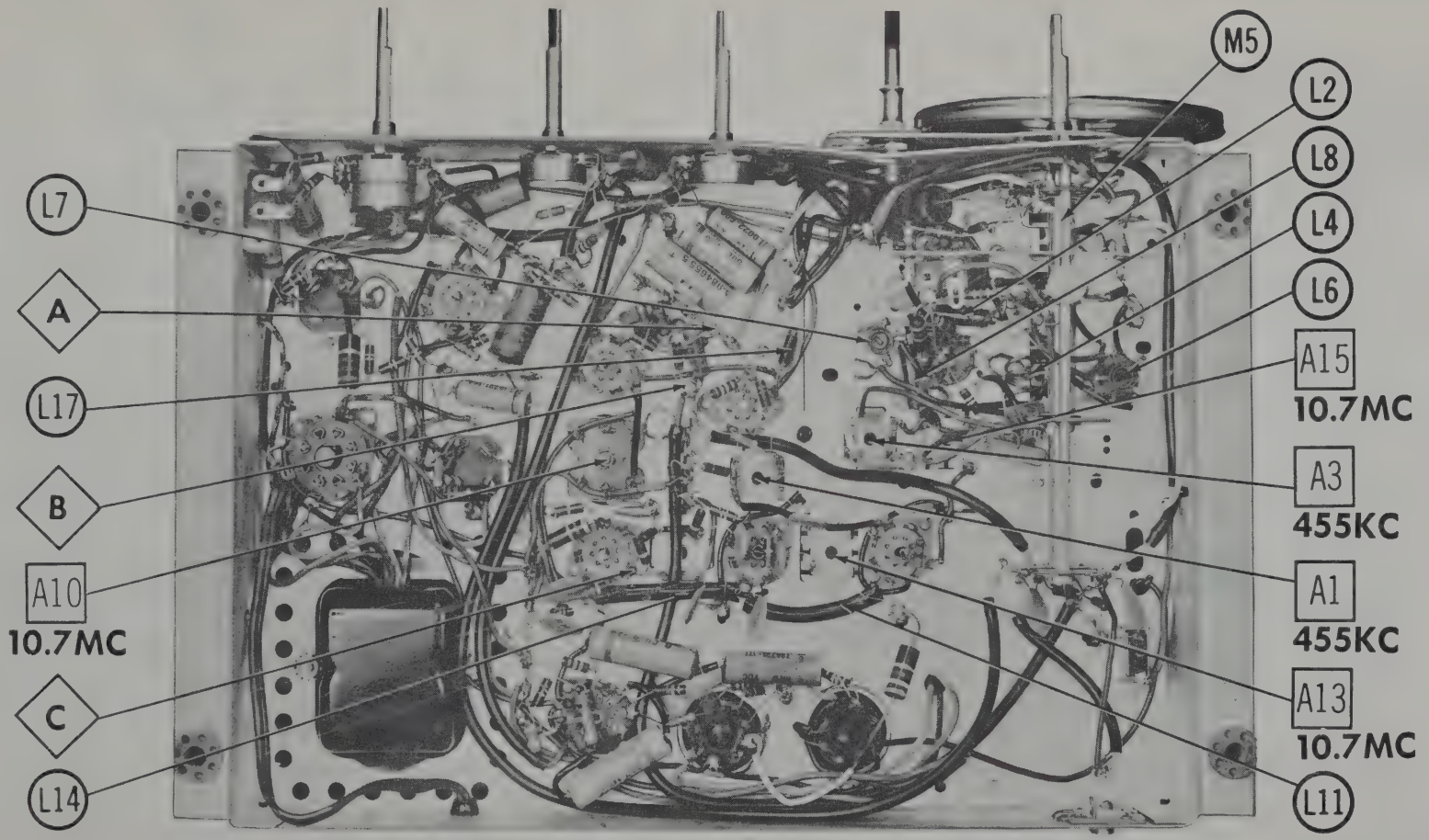


FIG.2



CHASSIS BOTTOM VIEW - ALIGNMENT IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM-AM RF Amplifier	6CB6	
V2	FM-AM Mixer-Osc.	6X8	
V3	1st FM-AM IF Amplifier	6BA6	
V4	2nd FM IF Amplifier	6AU6	
V5	FM Limiter	6AU6	
V6	Ratio Detector	6AL5	
V7	AM Detector-AVC	6AV6	
V8	Tuning Eye	6AL7GT	
V9	AF Amplifier	6CG7	
V10	AF Amp. -Phase Inv.	6CG7	
V11	Output	6V6GT	
V12	Output	6V6GT	
V13	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲ 35	400	101414	AFH4-78-10	D0650	FP429	TMQ-99	Q-385	TVL-4736
B	■ 35	400							
C	▲ 10	350							
D	20	25							
C2A	■ 20	400	101357	AFH4-76	D0624	FP396.1 † TC22		Q-305 † MMT-0210	R2505 *
B	▲ 20	400							
C	10	25							
D	▲ 40	25							①
C3	2	50	79181	PRS50V2	BBR2-50	TC302	TD-2-50	MT-0502	TVA-1301
C4	8	10VAC	100509	PRS-AC10V8	BBR16-90 † BBR16-90 †	TC108	TD-16-150 † TD-16-150 †	MT-1516 † MT-1516 †	R2201 *

① C2D is not used
† Connect negative leads together
* Non-Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C5	220		71920		D6-221	L10T22	ED-220	MCB220	MS-322	10%
C6	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C7	10000		73960	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C8	1000		77084	EF-001	MFT-1000				503C-D1	
C9	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC5247	5GA-D47	
C10	33		73739	NP0-SI33	TCZ-33	L10Q33	ED-33	ZT-5433	5TCC-Q33	10%
C11	220		71920		D6-221	L10T22	ED-220	MCB220	MS-322	10%
C12	4700		39668	1467-0047	DD-472	1R5D47	ED-0047	UC-5247	1FM-247	
C13	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C14	10		76350	NP0-SI10	TCZ-10	CTA6Q1C	TC0-10	ZT-541	5TCC-Q1	5%
C15	12		76349		TCZ-12	CTA6Q12C	TC0-12			10%
C16	47		39042	N750-SI47	TCN-47	CTA6Q47U	TC7-47	NT-5447	5TCU-Q47	N750 10%
C17	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	NOTES
R28	120Ω		502112	
R29	100Ω		502110	
R30	100K		502410	
R31	1200Ω		502212	
R32	6800Ω		502268	
R33	2200Ω		502222	
R34	6800Ω		502268	
R35	4700Ω		502247	
R36	2.2meg		502522	
R37	390K		502439	
R38	2.2meg		502522	
R39	82K		502382	
R40	1meg		502510	
R41	4700Ω		502247	
R42	2.7meg		72788	
R43	120K		502412	
R44	2700Ω		502227	
R45	1.8meg		502518	
R46	150K		502415	
R47	22K		502322	
R48	22K		502322	
R49	8200Ω		502282	
R50	120K		502412	
R51	3300Ω		502233	
R52	47K		502347	
R53	220K		502422	
R54	82K		502382	
R55	5600Ω		502256	
R56	8200Ω		502282	
R57	56K		502356	
R58	22K		502322	
R59	27K		502327	
R60	4700Ω		502247	
R61	2700Ω		502227	
R62	470K		502447	
R63	470K		502447	
R64	390Ω	2	522139	
R65	3300Ω		502233	
R66	15K		502315	
R67	1200Ω	2	522212	
R68	6800Ω 5%	1	512268	
R69	1200Ω		502212	
R70	68Ω		502068	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @.72A	560VCT @ .090A	5V @ 2A	6.3V @4.5A	103913					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	7100Ω CT	3-4Ω	103914						

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	RCA Victor PART No.	QUAM PART No.	NOTES
SP1	6"x9"	PM	3-4Ω	101182	69A3	
SP2	3½"	PM	6-8Ω	100465	3A15TZ6.6	
SP3	3½"	PM	6-8Ω	100465	3A15TZ6.6	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C18	1000		77084	EF-001	MFT-1000				503C-D1	
C19	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C20	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C21	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C22	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C23	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C24	10000		73960	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C25	10000		73960	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C26	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C27	10000		73960	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C28	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C29	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C30	100		103166	SI100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C31	100		103166	SI100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C32	.0012	200	103332							10%
C33	470		76992	1464-00047		5R5T47			MS-347	10%
C34	470		76992	1464-00047		5R5T47			MS-347	10%
C35	.047	200	73558							10%
C36	10000		73960	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C37	10000		73960	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C38	.01	400	73561							10%
C39	10000		73960	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C40	.1	400	78922					GEM-401		10%
C41	.0022	600	73595							10%
C42	.022	200	79343							10%
C43	.047	400	73558							10%
C44	.1	400	78922					GEM-401		10%
C45	.047	400	73553							10%
C46	.001	200	77533							10%
C47	.0047	400	73920							10%
C48	470		75198		D6-471	L10T47	ED-470		MS-347	10%
C49	.0022	600	73595							10%
C50	.047	400	73553							10%
C51	680		102721				ED-680			10%
C52	.047	400	73553							10%
C53	.047	400	73553							10%
C54	220		77460		D6-221	L10T22	ED-220		MS-322	10%
C55	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	103951	BT-160			PP55DT1683	Volume, Tap@ 100K & 200K
B	Shaft			Not Req.				
C	Switch			KB-1				
R2A	1meg	½	103915	B-70	A47-1meg-Z	Q13-137	U53	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	500K	½	103916	B-59	A47-500K-S	Q11-133	U50	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	NOTES
R4	2.2meg		502522	
R5	4700Ω		502247	
R6	10Ω		502010	
R7	10K		502310	
R8	100K		502410	
R9	1000Ω		502210	
R10	3300Ω		502233	
R11	330Ω		502133	
R12	3.9meg		502539	
R13	150K		502415	
R14	18K		502318	
R15	47K	1	512347	
R16	1000Ω		502210	
R17	47K		502347	
R18	68Ω		502068	
R19	100K		502410	
R20	150K		502415	
R21	1000Ω		502210	
R22	120Ω		502112	
R23	100K		502410	
R24	220K		502422	
R25	220K		502422	
R26	47K	1	502347	
R27	22K		502322	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA RCA Victor PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	FM Ant. Coil	103501				
L2	Fil. Choke	76351	19-1005	BC-566	4612	9 Microhenries
L3	FM RF Coil	76353				
L4	FM Osc. Coil	77973				
L5	Loop Ant.	100534				
L6	AM RF Coil	76338	14-1076			
L7	AM Osc. Coil	76337	14-1077	BC-393	71-Osc.	
L8	Fil. Choke	76351	19-1005	BC-566	4612	9 Microhenries
L9	1st. FM IF	75559	16-3471	FM-251	1451	
L10	1st AM IF	76335	16-6758	BC-352	12-C1	
L11	Fil. Choke	71942	19-1000	BC-561	4602	1 Microhenry
L12	2nd FM IF	76329	16-3472	FM-251	1451	
L13	2nd AM IF	76328	16-6770	BC-355	12-C6	
L14	Fil. Choke	71942	19-1000	BC-561	4602	1 Microhenry
L15	3rd FM IF	77939				
L16	Ratio Det.	77938	17-3488	FM-252	1453	
L17	Fil. Choke	71942	19-1000	BC-561	4602	1 Microhenry
L18	Line Choke	103599				25 Microhenries
L19	Line Choke	103599				25 Microhenries

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M1	Dial Lamp	31480	#47
M2	Dial Lamp	31480	#47
M3	Knob Lamp	31480	#47
M4	Tuning Cap.	103364	6Gang (AM Sections: Ant. 30-587mmf, RF20-247mmf, Osc. 19-164mmf.)
M5	Switch	103917	Function (Rotary Wafer Type)
M6	Switch	33900	Stereophonic Sound (Slide Type SPST)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Escutcheon	103920	Tuning Dial
Escutcheon	103918	Control Knob
Knob	103923	Function Switch
Knob	103924	Bass, Treble
Knob	103921	Tuning
Knob	103922	On-Off-Volume
Dial Glass	103919	
Dial Pointer	103910	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting)..... Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

*TRADE MARK

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

SHERWOOD MODEL S-1000-II

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

SHERWOOD
MODEL S-1000-II

SHERWOOD
MODEL S-1000-II

TRADE NAME	Sherwood Model S-1000-II
MANUFACTURER	Sherwood Electronic Laboratories, Inc., 2802 W. Cullom Ave., Chicago 18, Illinois
TYPE SET	AC Operated 20 Watt Audio Amplifier
TUBES (Seven)	Types EF86/6267 (or) Z729 Preamplifier, 12AX7/ECC83 Preamp.-Cath. Follower, 12AX7/ECC83 AF Amplifier, 6BA8A AF Amp.-Phase Inv., (2) 6L6GB Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .96 Amp. @ 117 Volts AC (100 Watts)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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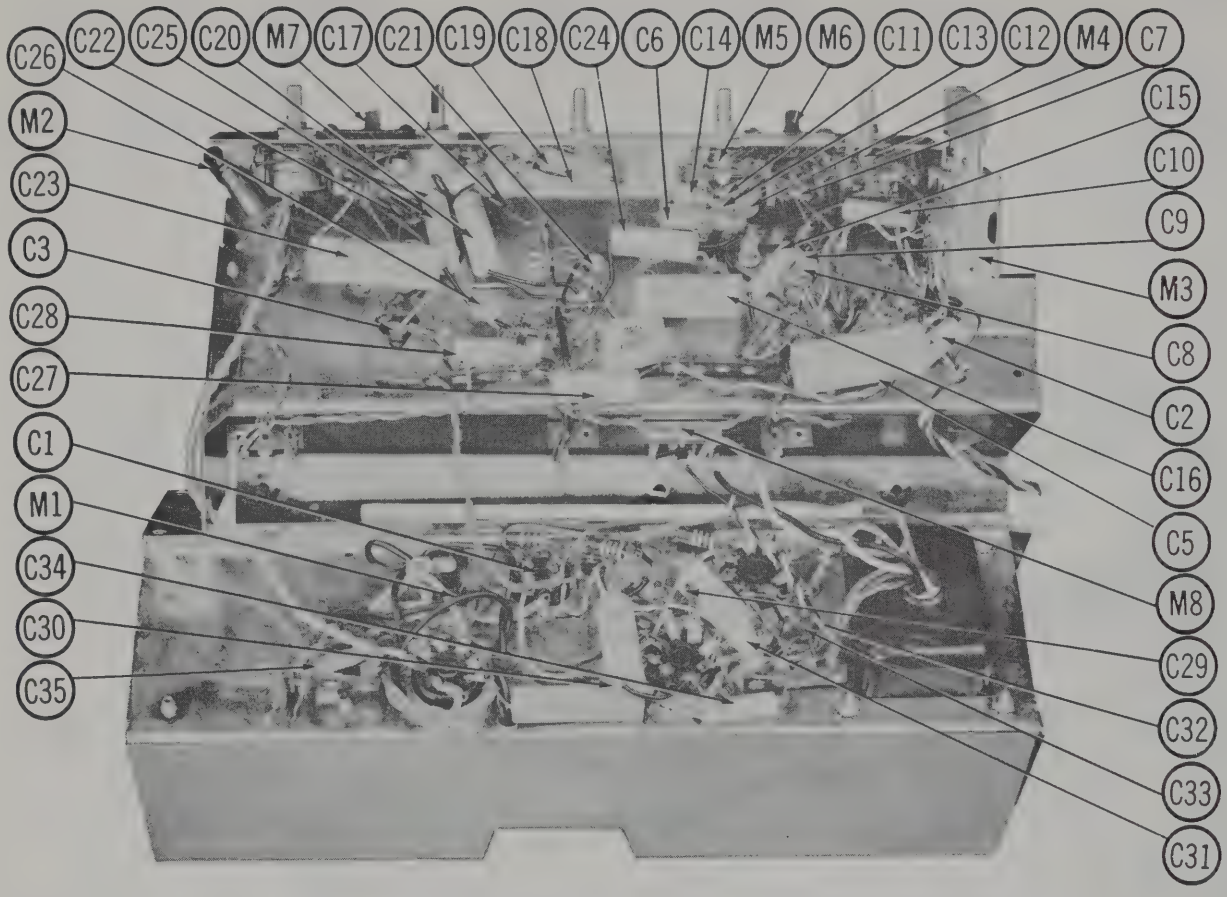
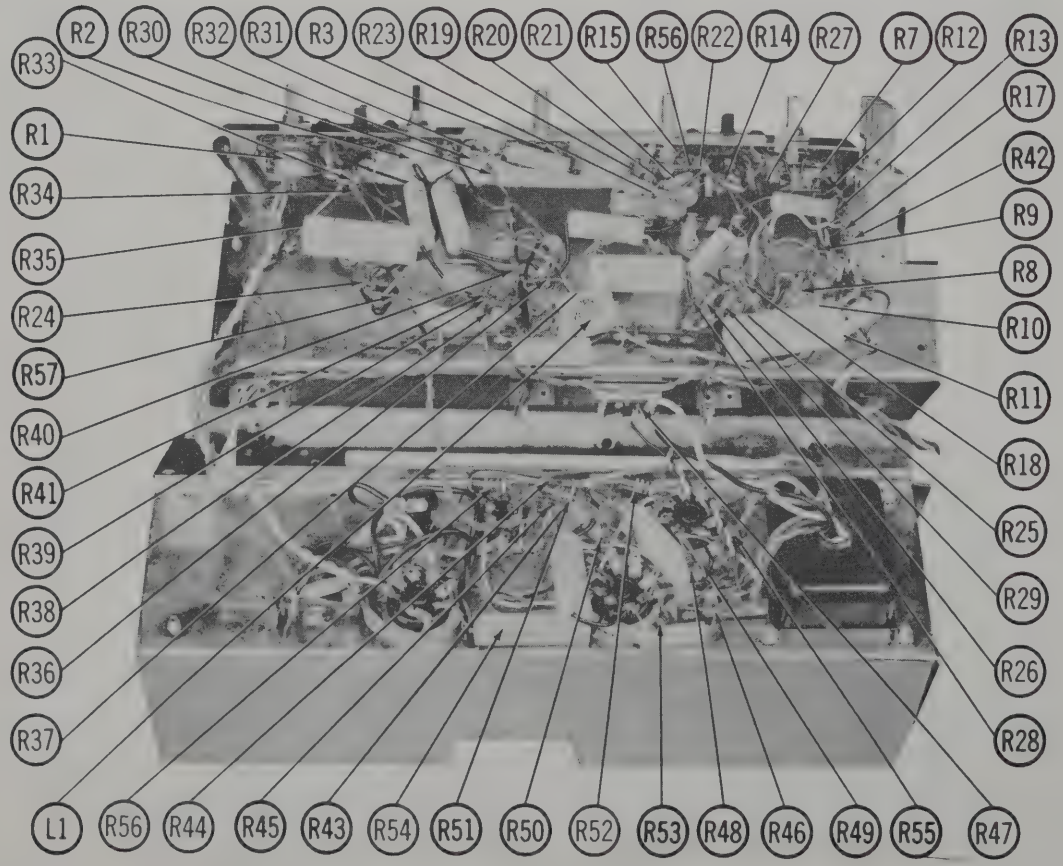


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	Preamplifier	EF86/6267 Note 1
V2	Preamp. - Cath. Follower	12AX7/ECC83
V3	AF Amplifier	12AX7/ECC83
V4	AF Amp. - Phase Inv.	6BA8A
V5	Output	6L6GB
V6	Output	6L6GB
V7	Rectifier	5Y3GT

Note 1. Alternate Type Z729

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SHERWOOD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	400		AFH4-85-25	D0655	FP431-3		Q-310	R2528 *
B	■40	400							
C	▲5	350							
D	50	50							
C2	50	5		SRE6V50	BBR50-6	TT6X50	TD-50-6	MMT-650	TE-1100
C3A	▲10	400		AFH2-47	B0370	FP231	TMD-41	D-200	R2322 *
B	■15	400							

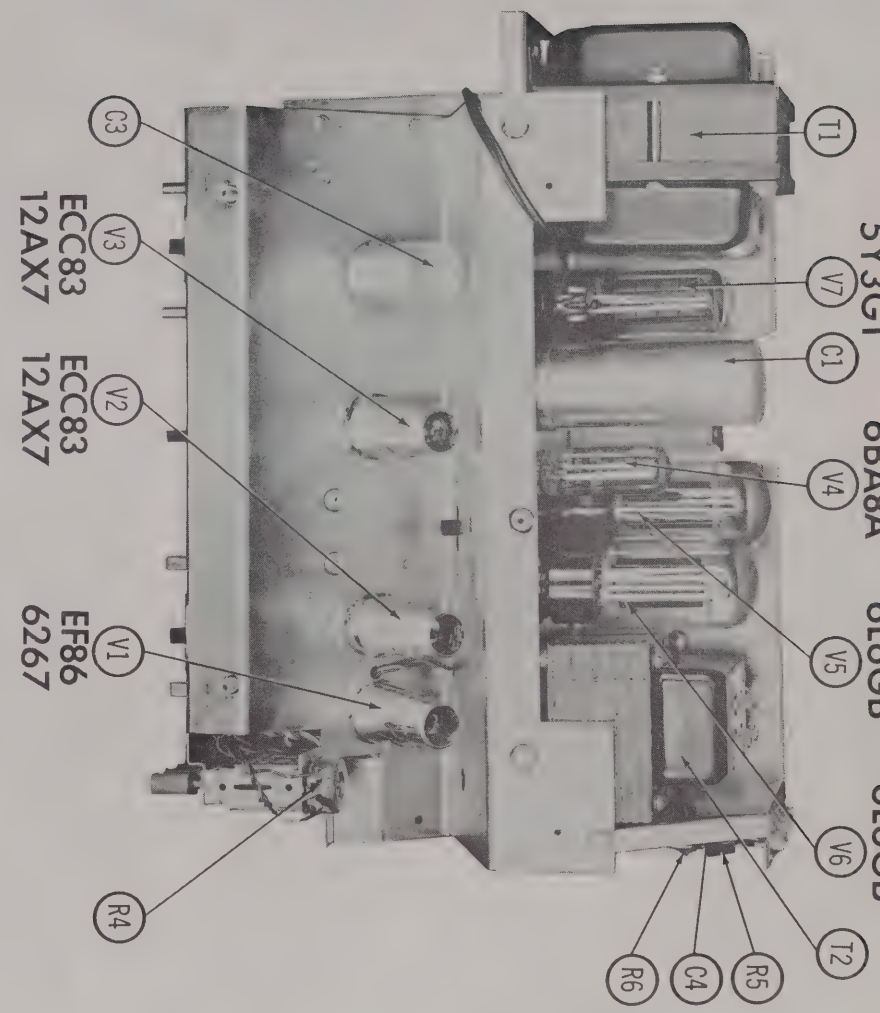
* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SHERWOOD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	100			1468-0001	D6-101	5W5T1	ED-100	MC235	1FM-31	
C5	.33	200		P288N-33				GEM-2033		
C6	.015	400		P488N-015	DD16-153	CUB6S15	ED-015	GEM-4115	4TM-S15	
C7	680				D6-681	1R5T68	ED-680		MS-368	10%
C8	820					1R5T82	ED-820		MS-382	10%
C9	270				D6-271	5R5T27	ED-270		MS-327	10%
C10	.0047	400		P488N-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C11	1200					1R5D12	ED-1200		MS-212	10%
C12	1200					1R5D12	ED-1200		MS-212	10%
C13	330				D6-331	5R5T33	ED-330		MS-333	10%
C14	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C15	.01	400		P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C16	.15	200		P288N-15		CUB2P15		GEM-2015	2TM-P15	
C17	100			1469-0001	D6-101	22R5T1	CY10C101K	MCB235	MS-31	10%
C18	.0033	400		P488N-0033	D6-332	CUB6D33	GP-3300	GEM-6233	6TM-D33	
C19	.0033	400		P488N-0033	D6-332	CUB6D33	GP-3300	GEM-6233	6TM-D33	
C20	.033	400		P488N-033	DF-303	CUB6S33		GEM-4133	6TM-S33	
C21	680				D6-681	1R5T68	ED-680		MS-368	10%
C22	100			1469-0001	D6-101	22R5T1	CY10C101K	MCB235	MS-31	10%
C23	.22	200		P288N-22		CUB2P22		GEM-2022	2TM-P22	
C24	.033	400		P488N-033	DF-303	CUB6S33		GEM-4133	6TM-S33	
C25	.022	400		P488N-022	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C26	2200					1R5D22			MS-222	10%
C27	.027	400		P488N-025		CUB6S3		GEM-413	4TM-S3	
C28	.033	400		P488N-033	DF-303	CUB6S33		GEM-4133	6TM-S33	
C29	47			1469-000047	D6-470	22R5Q47	CY10C470K	ZT-5447	MS-447	10%
C30	.1	400		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C31	.1	400		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C32	47			1469-000047	D6-470	22R5Q47	CY10C470K	ZT-5447	MS-447	10%
C33	120			1469-00012	D6-121	22R5T12	ED-120		MS-312	10%
C34	.01	400		P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C35	5000	1400		DAC-9	DD30-502	HVE16D5	HD15-4700	GEM-1625	BL-D50	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SHERWOOD PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	300K	½	671AB3					Loudness, Tap ② 20K
B	Switch							
R2A	500K	½	670AB1	BT-65	A47F5-500K	Q19-133X	UT-431	Treble, Tap ② 200K
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1meg	½	670AB2	B-69	A47-1meg-S	Q11-137	U54	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4	500K	½	670AB7					Phono Level

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		SHERWOOD PART No.	NOTES
	OHMS	WATT		
R5	47K			
R6	100K			
R7	470K			Note 1
R8	100K			
R9	150K			
R10	820K			
R11	1500Ω			
R12	1meg			
R13	22meg			
R14	150K			
R15	270K			
R16	56K			
R17	10meg			
R18	220K			
R19	56K			
R20	100K			
R21	10meg			
R22	3.9meg			
R23	1.5meg			
R24	10K			
R25	2700Ω			
R26	470K			
R27	1meg			
R28	680Ω			
R29	47K			
R30	470K			

ITEM No.	RATING		SHERWOOD PART No.	NOTES
	OHMS	WATT		
R31	100K			
R32	100K			
R33	47K			
R34	150K			
R35	1800Ω			
R36	150K			
R37	2700Ω			
R38	1meg			
R39	6800Ω			
R40	82K			
R41	2700Ω			
R42	220K			
R43	1meg			
R44	220K			
R45	1.5meg			Note 2
R46	680Ω			
R47	0.56Ω			
R48	6800Ω			
R49	220Ω			
R50	680K			
R51	47K	1		
R52	47K	1		
R53	220K			
R54	240Ω	10		
R55	220K			
R56	4700Ω	1		
R57	6800Ω			

Note 1. Not used in some versions.

Note 2. Some versions may use 2.2meg.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	SHERWOOD PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ②.98A	700VCT ②.125A	5V ② 2A	6.3V ② 2.9A	922AB1					

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	SHERWOOD PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5500Ω CT	16Ω Tap ② 8Ω, 4Ω	920AB1						

COILS

ITEM No.	USE	REPLACEMENT DATA				NOTES
		SHERWOOD PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Tone Choke					140 Millihenries

FUSES

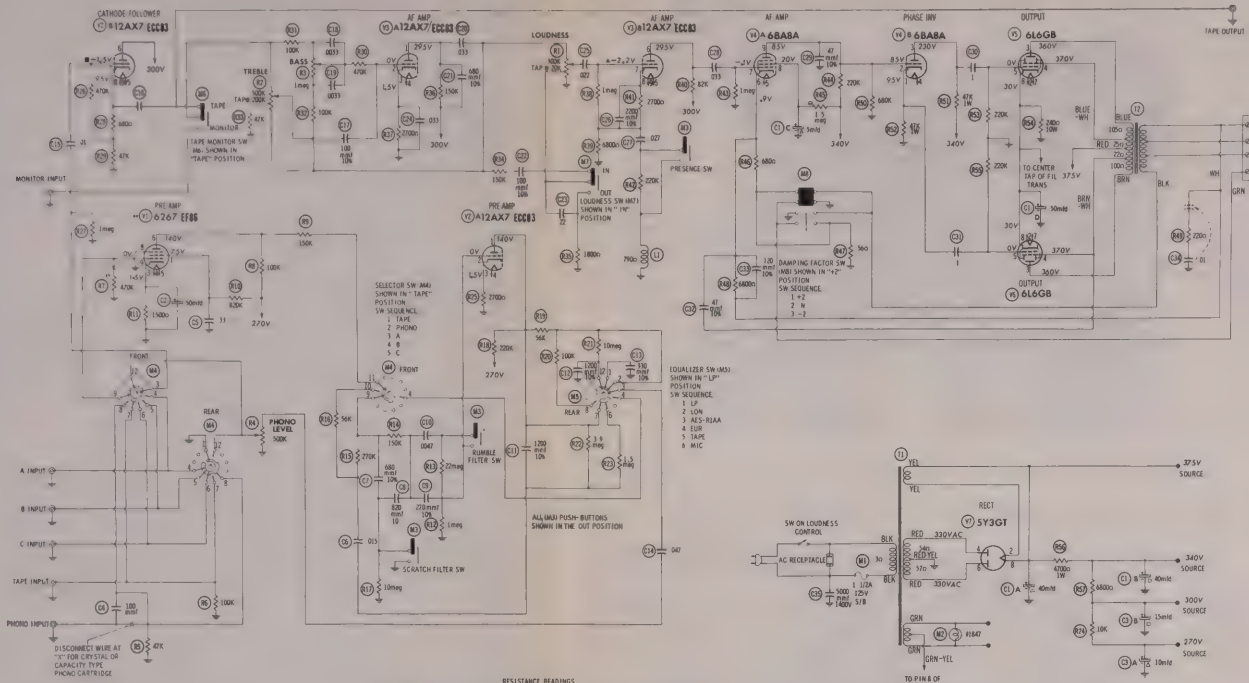
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			SHERWOOD PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	1½A 125V S/B			3130L.5 (3AG 1½A 125V S/B)	342003	MDL1½	HKP

MISCELLANEOUS

ITEM No.	PART NAME	SHERWOOD PART No.	NOTES
M2	Pilot Lamp		#1847
M3	Switch Ass'y		Presence, Scratch Filter, Rumble Filter, Phono Level (Slide Type)
M4	Switch		Selector (Rotary Wafer Type)
M5	Switch		Equalization (Rotary Wafer Type)
M6	Switch		Tape Monitor (Slide Type SPDT)
M7	Switch		Loudness (Slide Type SPDT)
M8	Switch		Damping Factor (Slide Type DPDT)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7/ECC83	†840K	0Ω	150Ω	240Ω	240Ω	†120K	0Ω	0Ω	85K
V2	12AX7/ECC83	†240K	1meg	270Ω	240Ω	240Ω	†131K	520K	47K	240Ω
V3	12AX7/ECC83	†160K	670K	270Ω	240Ω	240Ω	†93K	1meg	9560Ω	240Ω
V4	6BA8A	47K	†160K	†52K	240Ω	240Ω	680K	1meg	†2.2meg	†160K
V5	6L6GB	0Ω	240Ω	†130Ω	†25Ω	220K	240Ω	▬	240Ω	
V6	6L6GB	0Ω	240Ω	†122Ω	†22Ω	220K	0Ω	▬	240Ω	
V7	5Y3GT	NC	20K(M+/+)	NC	54Ω	NC	37Ω	TP	220Ω(Min)	

† MEASURED FROM PIN 8 OF V7
■ MEASURED FROM PIN 8 OF V2
▲ MEASURED FROM PIN 8 OF V3
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder
*TRADE MARK
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

SONIC MODEL 465

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SONIC MODEL 465

SONIC MODEL 465

TRADE NAME	Sonic Model 465
MANUFACTURER	Sonic Industries, Inc., 19 Wilbur St., Lynbrook, N. Y.
TYPE SET	AC Operated AM Receiver With 4 Speed Automatic Record Changer
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-120 Volts AC-60 Cycles
RATING	.29 Amp. @ 117 Volts AC (29 Watts Without Motor)
TUNING RANGE—BROADCAST	540KC - 1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2	Adjust for maximum output.
2.		Loop	1600KC	1600KC	"	A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	1400KC	"	A4	"
4.		"	600KC	600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat steps 2, 3 & 4 for best results.

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE WEBCOR MODEL 151 — PHOTOFACT SET 375 FOLDER 17

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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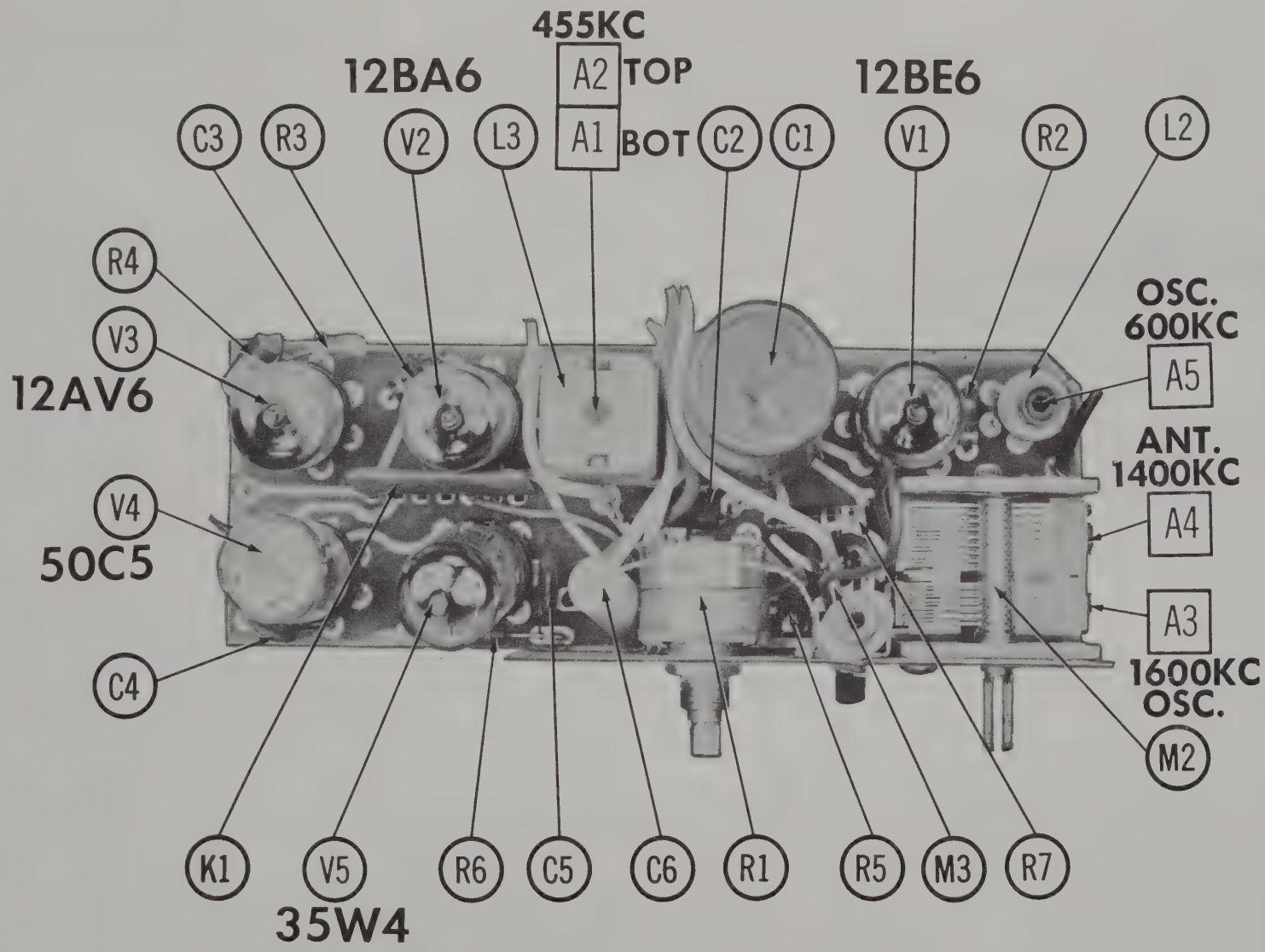
FOLDER 11



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amp.	12AV6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SONIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	150		PRS150V5030	BBRD5315	TCD497	TDLD-8	MTD-301	TVA-2450
B	30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SONIC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.05	200								
C3	470			SI 470	D6-471	LT6T47	GP-470	UC-5347	5GA-T47	
C4	5000			BPD-005	DD-502	BYA6D5	ED-005	DC525	5HK-D5	
C5	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C6	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SONIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	500K	½	VC112					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		SONIC PART No.	NOTES
	OHMS	WATT		
R2	9100Ω			
R3	4700Ω 5%			
R4	56K			

ITEM No.	RATING		SONIC PART No.	NOTES
	OHMS	WATT		
R5	2.2Meg			
R6	150Ω			
R7	390Ω	1		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	SONIC PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2500Ω	3-4Ω	25A1-A	Z1101	A-3025	A-3332	24S53	S-12X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SONIC PART No.	QUAM PART No.	
SP1	5"	PM	3-4Ω		5A07R	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		SONIC PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loop Stick						
L2	Osc. Coil						
L3	IF Trans.		16-6780	BC-356	13-PC1	RF-4	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SONIC PART No.	REPLACEMENT DATA
K1	Audio Coup. Net.	5000MMF, 5000MMF, 220MMF, 250MMF, 6.8Meg, 470K, 470K		Aerovox PA-512 Centralab PC-158 Sprague DT-5 Erie 1408-02

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	SONIC PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1	#56	81-TB		56	*PT-1	* Not necessary unless original mounting mechanism is damaged.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	SONIC PART No.	JENSEN PART No.	WALCO PART No.	
M2				

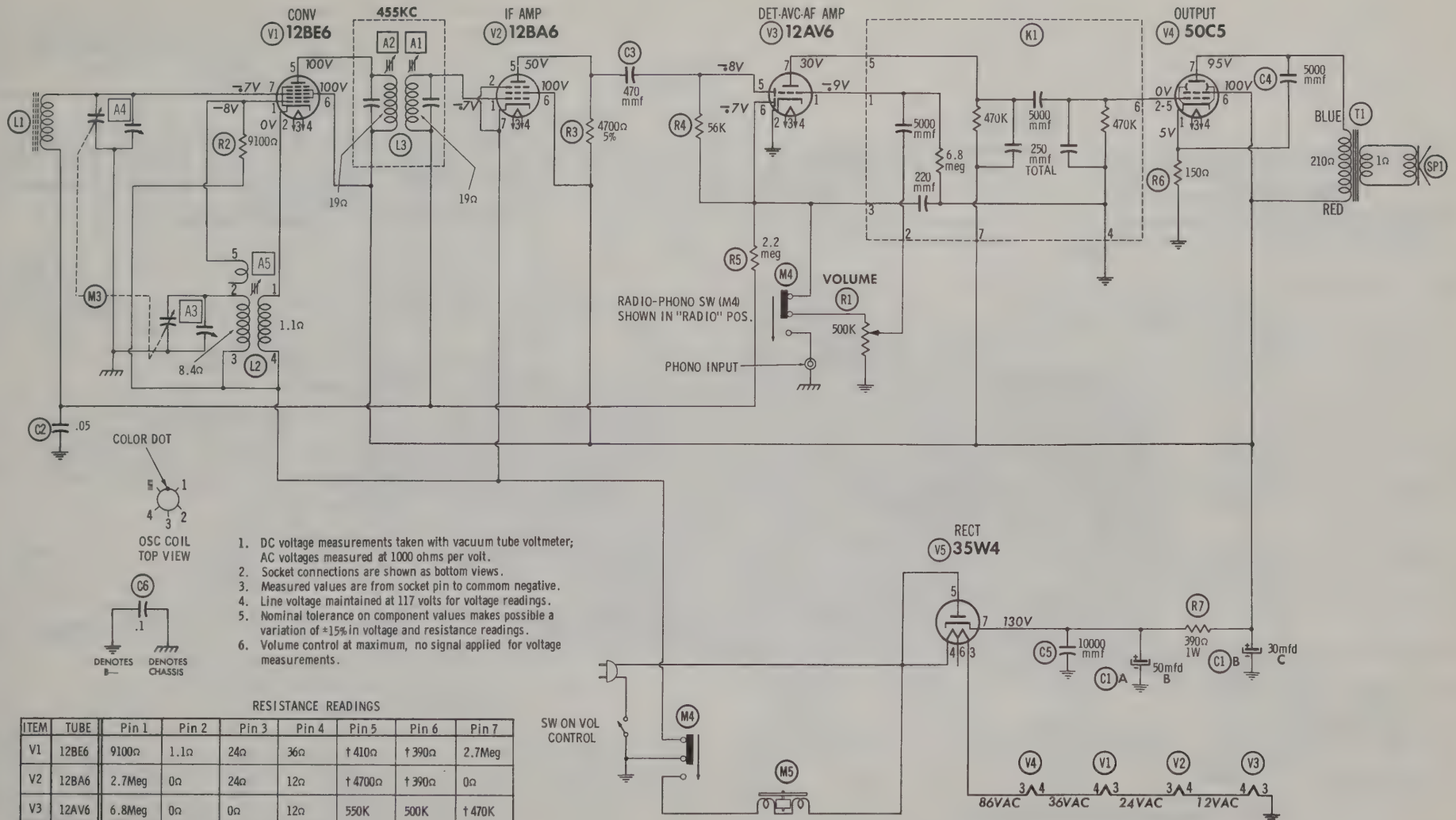
MISCELLANEOUS

ITEM No.	PART NAME	SONIC PART No.	NOTES
M3	Tuning Cap		2 Gang (Ant. 15-220MMF)
M4	Switch		Radio-Phono (Slide Type DPDT)
M5	Phono Motor		

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)..... Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

SONIC MODEL 465



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	9100Ω	1.1Ω	24Ω	36Ω	†410Ω	†390Ω	2.7Meg
V2	12BA6	2.7Meg	0Ω	24Ω	12Ω	†4700Ω	†390Ω	0Ω
V3	12AV6	6.8Meg	0Ω	0Ω	12Ω	550K	500K	†470K
V4	50C5	150Ω	470K	86Ω	36Ω	470K	†390Ω	†600Ω
V5	35W4	TP	TP	86Ω	120Ω	120Ω	108Ω	20K(Min)

† MEASURED FROM PIN 7 OF V5
TP TIE POINT

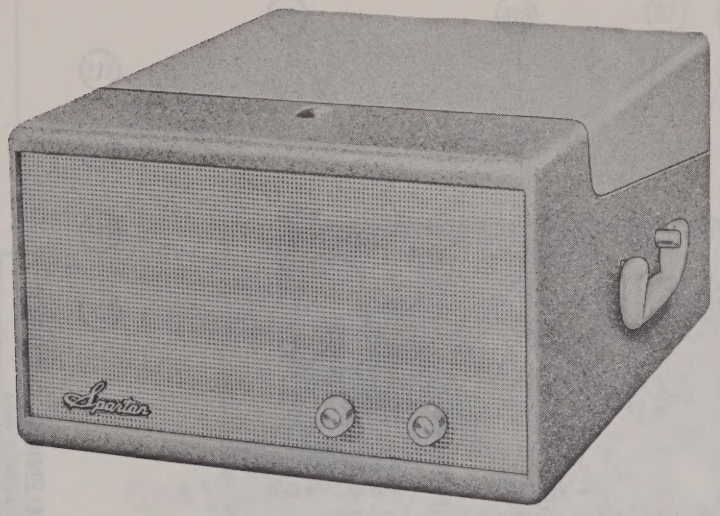
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder
*TRADE MARK
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

SPARTAN
CHASSIS AMP-158AA

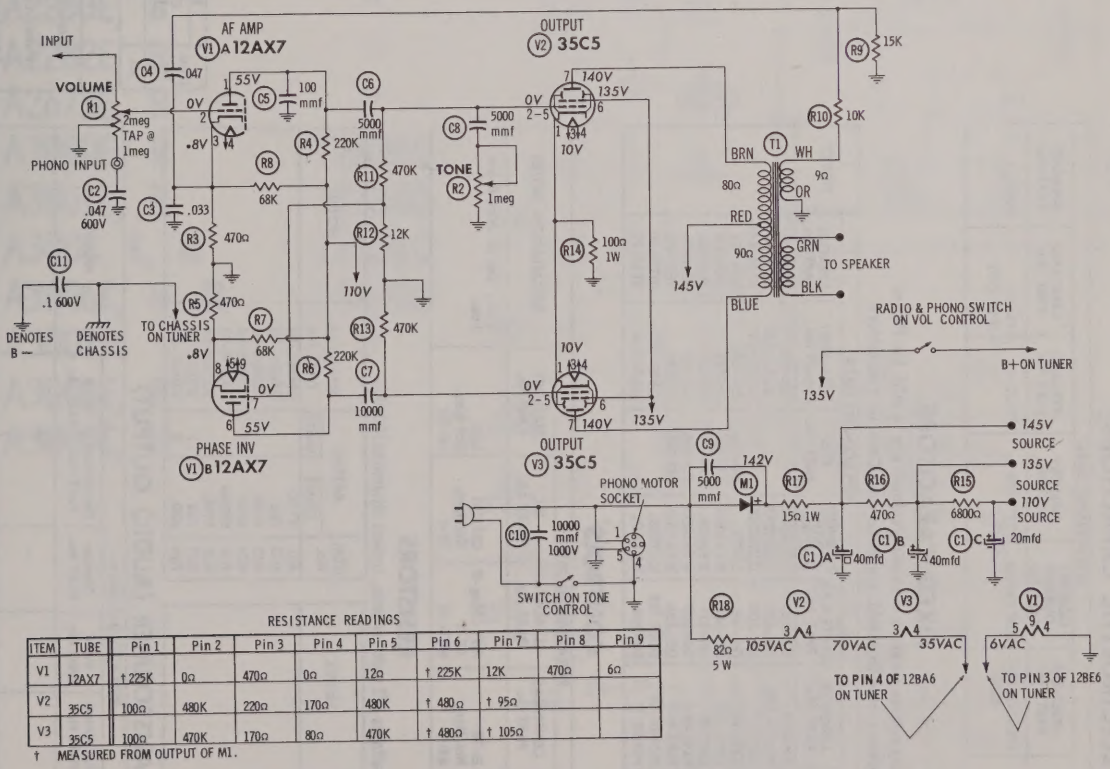
SPARTAN
CHASSIS AMP-158AA



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SPARTAN
CHASSIS AMP-158AA

TRADE NAME	Spartan Chassis AMP-158AA
MANUFACTURER	Spartan Div., 2131 Bueter Road, Fort Wayne 4, Indiana
TYPE SET	AC Operated Audio Amplifier With Phono Provisions
TUBES (Three)	Types 12AX7 AF Amp.-Phase Inv., (2) 35C5 Output
POWER SUPPLY	110-120 Volts AC-50/60 Cycles RATING .38 Amp. @ 117 Volts AC (35 Watts)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	† 225K	0Ω	470Ω	0Ω	12Ω	† 225K	12K	470Ω	6Ω
V2	35C5	100Ω	480K	220Ω	170Ω	480K	† 480Ω	† 95Ω		
V3	35C5	100Ω	470K	170Ω	80Ω	470K	† 480Ω	† 105Ω		

† MEASURED FROM OUTPUT OF M1.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

390-12

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. -Phase Inverter	12AX7	
V2	Output	35C5	
V3	Output	35C5	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SPARTAN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■40	150	270023-24	PRS150V40-4020	BBRT44215	TCT3116	TDLT-4	D-060 FM-1520	R2312 *
B	▲40	150							
C	20	150							

* Non-Catalog Item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SPARTAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.047	600	250201-11	BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	
C3	.033	200	250202-10	P288N-033	DF-303	CUB6S33		GEM-4133	6TM-S33	
C4	.047	200	250202-11	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C5	100		250218-22	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C6	5000		250175-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C7	10000		250175-2	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C8	5000		250175-30	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C9	5000		250175-30	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C10	10000	1000	250219-2	P1088N-01	DD16-103	CUB10S1		GEM-1011	10TM-S1	
C11	.1	600	250201-13	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SPARTAN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	2Meg	½	220141-1					Vol., Tap @ 1Meg & Sw.
R2A	1Meg	½	220123-28	B-70	A47-1Meg-Z	Q13-137	U53	Tone
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

RESISTORS

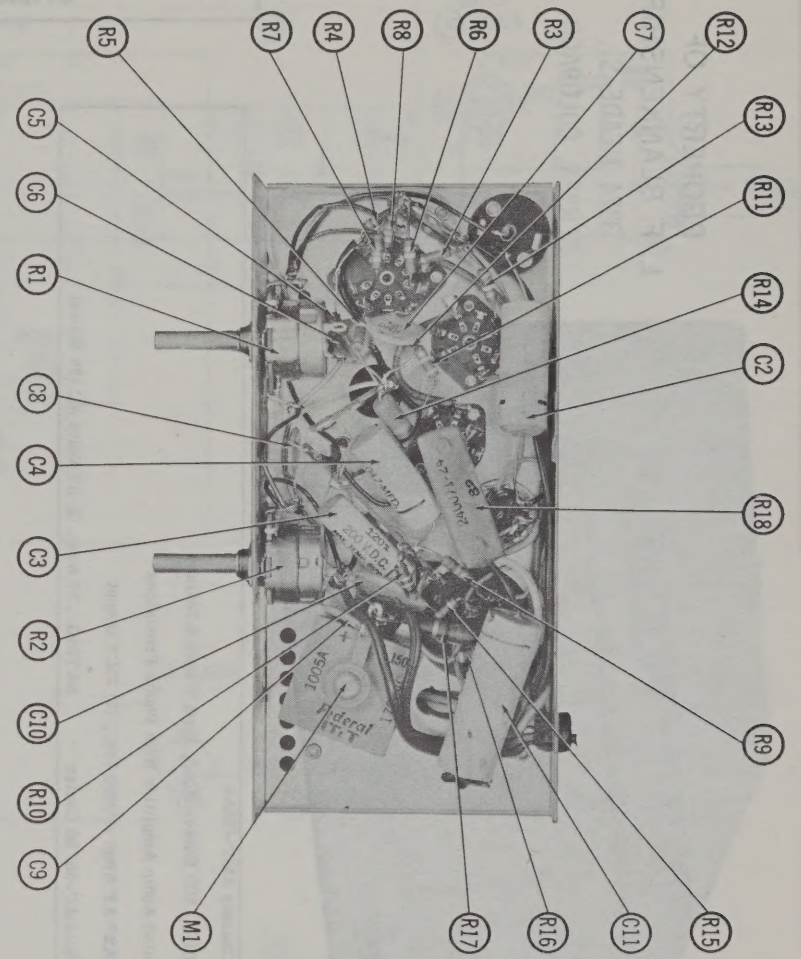
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	SPARTAN PART No.	NOTES
R3	470Ω		230104-58	
R4	220K		230104-90	
R5	470Ω		230104-58	
R6	220K		230104-90	
R7	68K		230104-84	
R8	68K		230104-84	
R9	15K		230104-76	
R10	10K		230104-74	
R11	470K		230104-94	
R12	12K		230104-75	
R13	470K		230104-94	
R14	100Ω	1	230105-50	
R15	6800Ω		230104-72	
R16	470Ω		230104-58	
R17	15Ω	1	230105-40	
R18	82Ω	5	240071-24	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC. 1	REPLACEMENT DATA SPARTAN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	3750Ω CT	3-4Ω	320265-1						
	Turns Ratio PRI.	SEC. 2							
	15:	1							

CHASSIS—BOTTOM VIEW



SELENIUM RECTIFIER

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA SPARTAN PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.098A	580038-2	1005A	RS150	150	

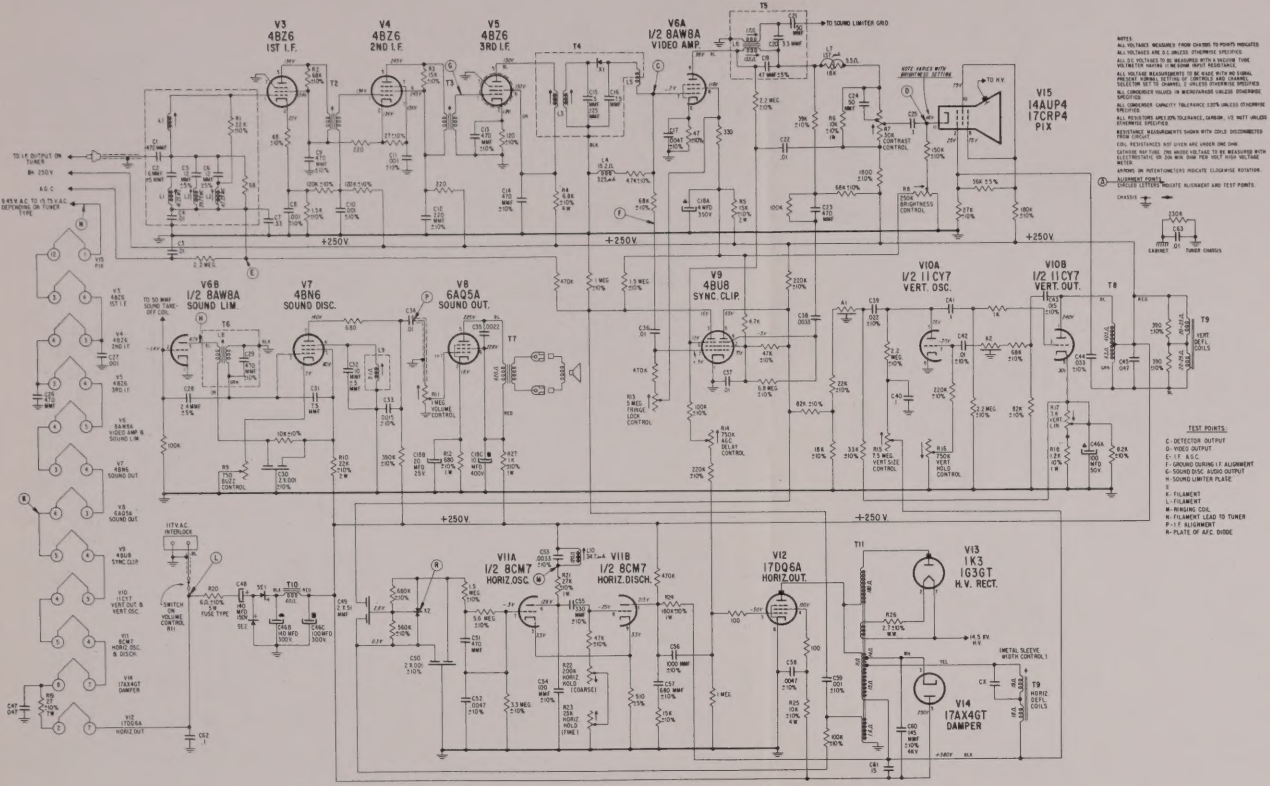
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting)..... Use BELDEN No. 8401

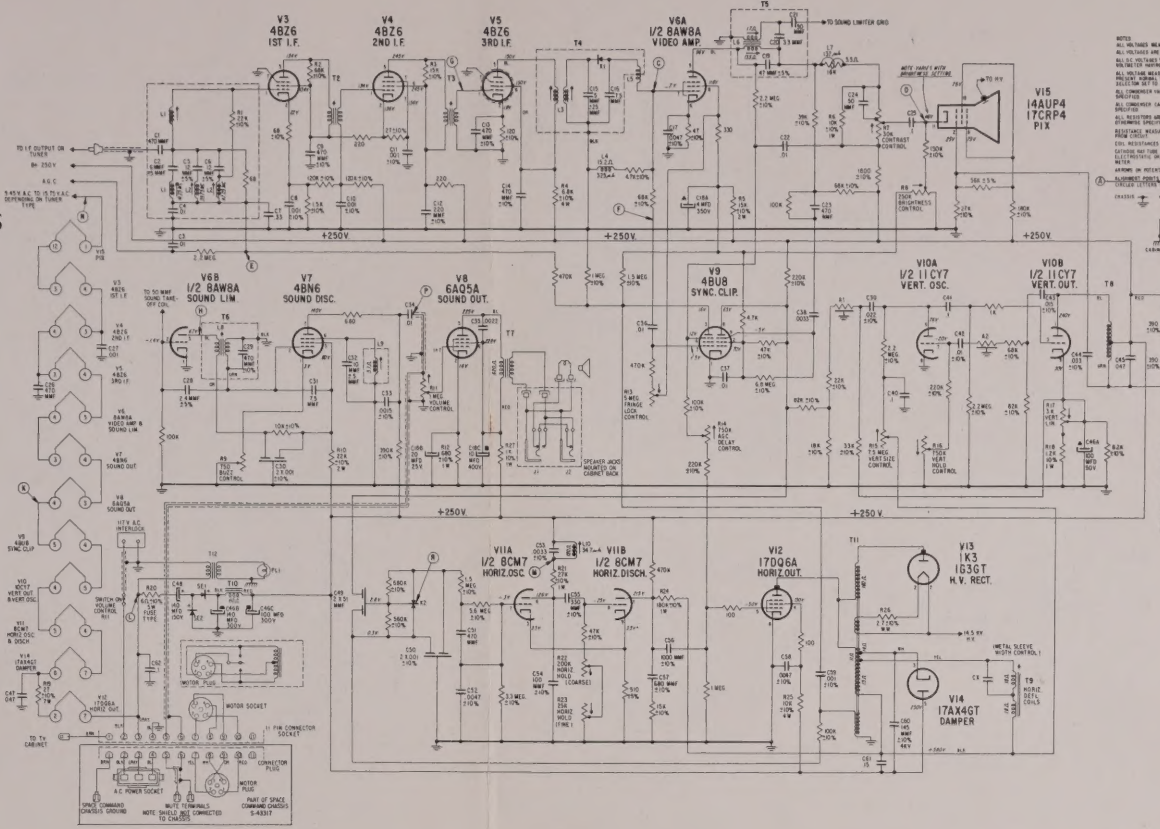
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)



ZENITH MODELS	CHASSIS
A1410L	15A26
A1411P	"
A1412G	"
A1716L	"
A1717G	"
A1718G	"
A1719J	"
A2001L	15A26Q

SCHEMATIC COURTESY OF ZENITH RADIO CORPORATION

ZENITH MODELS	CHASSIS
A2221L, R	17A30
A2223E, R, Y	"
A2245, E, R	"
A2246E, R	"
A2252R	"
A2253E, R	"
A2282E, R	"
A2673E, R	"
A3000E, R	17A31Q
A3001E, R	17A30Q
A3004, E, R	17A31Q
A3006E, H, R	17A30Q
A3007R	"
A3008E, R	"
A3009E, H	"


V3 4BZ6 1ST I.F.
V4 4BZ6 2ND I.F.
V5 4BZ6 3RD I.F.
V6A 1/2 8AW8A VIDEO AMP.
V15 14AUP4 17CRP4 PIX
V6B 1/2 8AW8A SOUND LIM.
V7 4BN6 SOUND DISC.
V8 6AQ5A SOUND OUT.
V9 4BU8 SYNC. CLIP.
V10A 1/2 11CY7 VERT. OSC.
V10B 1/2 11CY7 VERT. OUT.
V11A 1/2 8CM7 HORIZ.OSC.
V11B 1/2 8CM7 HORIZ.DISCH.
V12 17DQ6A HORIZ.OUT.
V13 1K3 1G3GT H.V. RECT.
V14 17AX4GT DAMPER
+250V
TEST POINTS
SCHEMATIC COURTESY OF ZENITH RADIO CORPORATION

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